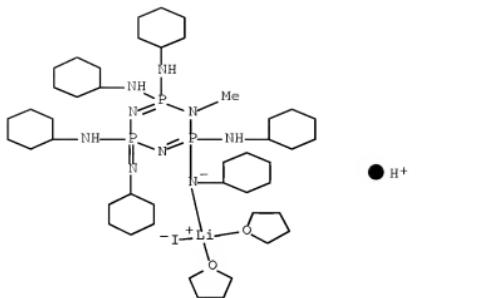


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L10     895682 SEA FILE=REGISTRY ABB=ON PLU=ON L8 NOT PMS/CI
L11     2814 SEA FILE=REGISTRY ABB=ON PLU=ON L10 AND 46.716/RID AND
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L12     15 SEA FILE=REGISTRY ABB=ON PLU=ON L11 AND LI/ELS
L17     105 SEA FILE=REGISTRY ABB=ON PLU=ON L10 AND IMINOIMIDODIPHOSP
        HORAMID?
L18     1 SEA FILE=REGISTRY ABB=ON PLU=ON L17 AND LI/ELS
L27     13 SEA FILE=HCAPLUS ABB=ON PLU=ON L12
L28     1 SEA FILE=HCAPLUS ABB=ON PLU=ON L18
L29     13 SEA FILE=HCAPLUS ABB=ON PLU=ON L27 OR L28
L30     45 SEA FILE=HCAPLUS ABB=ON PLU=ON L17
L31     3 SEA FILE=HCAPLUS ABB=ON PLU=ON L30 AND LITHIUM
L32     15 SEA FILE=HCAPLUS ABB=ON PLU=ON L29 OR L31
L33     1 SEA FILE=HCAPLUS ABB=ON PLU=ON L30 AND ELECTROLYT?
L34     QUE ABB=ON PLU=ON BATTERY? OR BATTERIES OR ELECTRODE#
        OR CATHODE# OR ANODE#
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L36     15 SEA FILE=HCAPLUS ABB=ON PLU=ON L32 OR L33 OR L35
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=> d 136 1-15 ibib ed abs hitstr hitind

L36 ANSWER 1 OF 15 HCAPLUS COPYRIGHT 2008 ACS on STN
 ACCESION NUMBER: 2007:1048715 HCAPLUS Full-text
 DOCUMENT NUMBER: 147:522398
 TITLE: Zwitterionic phosphazinium phosphazenate ligands
 AUTHOR(S): Benson, Mark A.; Ledger, Joanne; Steiner, Alexander
 CORPORATE SOURCE: Department of Chemistry, University of Liverpool,
 Liverpool, L69 7ZD, UK
 SOURCE: Chemical Communications (Cambridge, United Kingdom) (2007), (37), 3823-3825
 CODEN: CHCOFS; ISSN: 1359-7345
 PUBLISHER: Royal Society of Chemistry
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 OTHER SOURCE(S): CASREACT 147:522398
 ED Entered STN: 19 Sep 2007
 AB Zwitterionic ligands are readily prepared from phosphazenes (RNH)6P3N3 by successive alkylation of ring nitrogen sites and deprotonation of exocyclic NH sites. The crystal structure of deprotonation products were determined
 IT 956597-17-4P
 (crystal structure; preparation and structural characterization of zwitterionic phosphazinium phosphazenate ligands)
 RN 956597-17-4 HCAPLUS
 CN Lithiate(1-), iodo[N2,N2',N4,N4',N6-pentacyclohexyl-6-(cyclohexylimino)-3,6-dihydro-3-methyl-2λ5,4λ5,6λ5-1,3,5,2,4,6-triazatrichosphorine-2,2,4,4,6-pentaminato-κN2]bis(tetrahydrofuran)-, hydrogen (1:1), (T-4)- (CA INDEX NAME)



CC 29-14 (Organometallic and Organometalloidal Compounds)

Section cross-reference(s): 75

IT 956597-16-3P 956597-17-4P

(crystal structure; preparation and structural characterization of zwitterionic phosphazene phosphazenate ligands)

REFERENCE COUNT: 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L36 ANSWER 2 OF 15 HCPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2004:3212 HCPLUS [Full-text](#)

DOCUMENT NUMBER: 140:62300

TITLE: Supporting salt for battery, its manufacture, and the battery

INVENTOR(S): Otsuki, Masashi; Eguchi, Shinichi; Kanno, Hiroshi

PATENT ASSIGNEE(S): Bridgestone Corporation, Japan

SOURCE: PCT Int. Appl., 83 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004001882	A1	20031231	WO 2003-JP7352	20030610
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2003242210	A1	20040106	AU 2003-242210	20030610
EP 1517387	A1	20050323	EP 2003-736121	20030610
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC,				

PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
CN 1669165	A	20050914	CN 2003-817186	20030610
US 20050164093	A1	20050728	US 2004-518634	20041220
PRIORITY APPLN. INFO.:			JP 2002-178693	A 20020619
			JP 2002-178772	A 20020619
			WO 2003-JP/352	W 20030610

OTHER SOURCE(S): MARPAT 140:62300

ED Entered STN: 02 Jan 2004

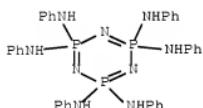
AB The salt comprises a phosphazene compound (NPA12)3 (I) or Al3P:NP(O)Al2 (II; Al = NRLi or F where ≥ 1 Al is NRLi and R = monovalent substituent) and I is manufactured by forming a phosphazene derivative by reacting a fluoro or chloro phosphazene derivative with a primary amine and adding Li alkoxide to form the compound and II is manufactured by forming a phosphazene derivative by reacting a chloro or fluoro phosphazene derivative with a primary amine and adding Li alkoxide to form the compound. The battery has a cathode, an anode, and a nonaq. electrolyte solution containing an aprotic organic solvent and the above salt. Another type of the battery has an electrolyte containing a polymer and the above salt.

IT 134435-36-2 639065-14-8 639065-15-9
639067-35-9

(manufacture of supporting salts containing phosphazene derivs. for battery electrolytes)

RN 134435-36-2 HCPLUS

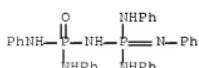
CN 1,3,5,2,4,6-Triazatrichosphorine, 2,2,4,4,6,6-hexahydro-2,2,4,4,6,6-hexakis(phenylamino)-, hexolithium salt (9CI) (CA INDEX NAME)



●6 Li

RN 639065-14-8 HCPLUS

CN Iminoimidodiphosphoramide, N,N',N'',N''',N''''-pentaphenyl-, pentolithium salt (9CI) (CA INDEX NAME)

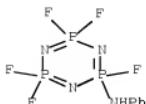


●5 Li

RN 639065-15-9 HCPLUS

CN 1,3,5,2,4,6-Triazatrichosphorin-2-amine, 2,4,4,6,6-pentafluoro-N-

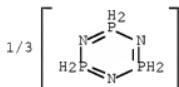
phenyl-, lithium salt (1:1) (CA INDEX NAME)



● Li

RN 639067-35-9 HCPLUS

CN 1,3,5,2,4,6-Triazatriphosphorine, trifluoro-2,2,4,4,6,6-hexahydrotris(phenylamino)-, trilithium salt (9CI) (CA INDEX NAME)



D1-F

D1-NH-Ph

●₃ Li

IC ICM H01M006-16

ICS H01M006-18; H01M010-40; H01B001-06; C07F019-00; C07F009-26; C07F009-6593; C07F001-02

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

Section cross-reference(s): 29

ST battery electrolyte salt manuf phosphazene deriv

IT Polyoxyalkylenes, uses

(manufacture of supporting salts containing phosphazene derivs. for battery electrolytes)

IT 7439-93-2, Lithium, uses

(anode; manufacture of supporting salts containing phosphazene derivs. for battery electrolytes)

IT 1313-13-9, Manganese dioxide, uses 52627-24-4, Cobalt lithium oxide

(cathode; manufacture of supporting salts containing phosphazene derivs. for battery electrolytes)

IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-32-7,

Propylene carbonate 110-71-4 25322-68-3, Polyethylene oxide

33027-66-6 55593-38-9 134435-36-2 485399-26-6

593094-52-1 639065-14-8 639065-15-9

639067-35-9 639067-36-0 639067-37-1

(manufacture of supporting salts containing phosphazene derivs. for battery electrolytes)

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L36 ANSWER 3 OF 15 HCPLUS COPYRIGHT 2008 ACS on STN
 ACCESSION NUMBER: 2001:667444 HCPLUS Full-text
 DOCUMENT NUMBER: 136:37660
 TITLE: Intrinsic basicities of phosphorus imines and ylides: a theoretical study
 AUTHOR(S): Koppel, Ilmar A.; Schwesinger, Reinhard; Breuer, Thomas; Burk, Peeter; Herodes, Koit; Koppel, Ivar; Leito, Ivo; Mishima, Masaaki
 CORPORATE SOURCE: Institute of Chemical Physics Department of Chemistry, University of Tartu, Tartu, 51014, Estonia
 SOURCE: Journal of Physical Chemistry A (2001), 105(41), 9575-9586
 CODEN: JPCAFH; ISSN: 1089-5639
 PUBLISHER: American Chemical Society
 DOCUMENT TYPE: Journal
 LANGUAGE: English

ED Entered STN: 13 Sep 2001

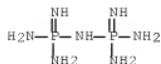
AB A d. functional theory (B3LYP/6-311+G**), ab initio (HF/3-21G*), and semiempirical (PM3) study of intrinsic basicities, protonation energies, or protonation enthalpies of organic P imine (iminophosphorane) including phosphazene, P ylide (phosphorane), and phosphine superbases was performed. The study shows that representatives of the 1st two classes of the above-mentioned organic superbases can reach the basicity level of the strongest inorg. superbases such as alkali-metal hydroxides, hydrides, and oxides. The strongest organic phosphazene imine superbases are predicted to reach the gas-phase basicity level of .apprx.300 kcal/mol (number of P atoms in the system $n \geq 7$), whereas the strongest organic phosphazene ylide superbases have (at $n \geq 5$) gas-phase basicities around or beyond 310-320 kcal/mol. The phosphine superbases, including the J. G. Verkade's bicyclic phosphines (proazaphosphatrane) are predicted to have a basicity comparable to P2 phosphazenes or P1 P ylides, whereas the resp. proazaphosphatrane imines and ylides are expected to be the strongest organic superbases which contain only a single P atom. Extremely high expected basicity values and handling preferences over inorg. superbases make representatives of novel organic superbases possible partners for observing the spontaneous gas-phase proton transfer between neutral Bronsted superacids and -bases. For the comparison, the basicities of some alkali-metal substituted NH3, phosphine, P, and N ylides and imines were also calculated

IT 67891-65-0, Diiminoimidodiphosphoramide 376651-59-1

(theor. study of intrinsic basicities of phosphorus imines and ylides and related mols.)

RN 67891-65-0 HCPLUS

CN Diiminoimidodiphosphoramide (9CI) (CA INDEX NAME)



RN 376651-59-1 HCPLUS

CN Diiminoimidodiphosphoramide, conjugate monoacid (9CI) (CA INDEX NAME)



● H+

CC 29-7 (Organometallic and Organometalloidal Compounds)
 Section cross-reference(s): 22, 65, 78

IT 69006-25-3, Lithium oxide ion (Li³⁺) 83560-69-4,
 Lithium nitride ion (Li^{4N1+}) 376651-41-1
 (energy, enthalpy and free energy of)

IT 12057-24-8, Dilithium oxide, properties 26134-62-3, Trilithium nitride
 (lithium cation basicity of)

IT 14700-19-7, Triaminophosphine imide
 (proton and lithium cation basicities; theor. study of intrinsic basicities of phosphorus imines and ylides and related mols.)

IT 51-92-3, Tetramethylammonium 74-85-1, Ethene, properties 80-70-6, N,N,N',N'-Tetramethylguanidine 113-00-8, Guanidine 115-11-7, Isobutene, properties 143-37-3, Acetamidine 463-52-5, Methanimidamide 593-54-6, Methylphosphine 594-09-2, Trimethylphosphine 1608-26-0, Hexamethylphosphorous triamide 2053-29-4, Methanimine 3487-44-3, Methylenetriphenylphosphorane 4112-23-6, Dimethyl(methylene)silane 4363-36-4, 1,1-Diaminoethene 7803-51-2, Phosphine (PH₃) 12057-29-3, Trilithium phosphide 13566-19-3, Phosphorus triamide 14580-91-7, Trimethyl(methylene)phosphorane 14616-59-2, Sulfilimine 14804-25-2 14936-94-8, Ethylimine 15107-02-5, Iminotrimethylphosphorane 16749-13-6, Phosphonium 16950-21-3 17000-00-9, Methylammonium 17341-24-1, Lithium(+), properties 17836-08-7, Methyloxonium 18500-32-8, Hydrazinium(1+) 18683-23-3, Methylsulfonium 19287-79-7, Trimethylphosphonium 19497-20-2 20729-41-3, Ethanimine 20770-41-6, Tripotassium phosphide 21259-15-4, ((Dimethylphosphino)imino)trimethylphosphorane 25215-10-5, Guanidinium 25682-80-8, Iminophosphorane 28602-10-0, Methylphosphonium 28706-85-6, Tris(dimethylamino)(methylene)phosphorane 28927-31-3, Trimethylsilylum 28963-72-6 29212-32-6, 1,4-Dihydro-4-iminopyridine 32589-80-3, Tetramethylphosphonium 33825-39-7 34858-93-0, Trihydrazino(imino)phosphorane 36429-11-5, Methylenephosphorane 38697-07-3, 2-Propanimine 48055-22-7 49778-01-0, Tris(dimethylamino)(imino)phosphorane 49778-04-3, Tris(dimethylamino)(methylimino)phosphorane 50676-76-1 52018-42-5 52900-33-1 59991-87-6 62399-23-9 65324-95-0, (Methylimino)phosphorane 67891-65-8, Diiminoimidodiphosphoramide 80805-16-9, (tert-Butylimino)phosphorane 81269-78-5 81675-81-2, (tert-Butylimino)tris(dimethylamino)phosphorane 85199-24-2 85567-68-6, Triamino[(diaminophosphino)iminolphosphorane 88392-38-5 88392-40-9 111324-00-6 111324-03-9 111324-04-0, (tert-Butylimino)tris((tris(dimethylamino)phosphoranylide)amino)phosphorane 111324-08-4 121158-73-4 123597-04-6,

1,4-Dihydro-4-methylenepyridine 130854-40-9 157355-47-0
 159641-58-4 159641-59-5 159641-60-8 159641-61-9 172272-33-2
 181016-71-7, (Diaminosilylene)amine 185118-57-4,
 Triamino(methylene)phosphorane 227103-04-0, Diamino(methylene)silane
 290815-10-0 323194-32-7 376650-58-7 376650-59-8 376650-60-1
 376650-61-2, Triamino(methylene)phosphorane 376650-64-5
 376650-65-6, Sulfur amide imide (S(NH₂)₄(NH)) 376650-66-7
 376650-67-8 376650-68-9 376650-69-0 376650-70-3 376650-71-4
 376650-72-5 376650-73-6 376650-74-7 376650-75-8 376650-76-9
 376650-77-0 376650-78-1 376650-79-2, Amino(imino)bis[(triaminophosphoranylidene)methyl]phosphorane 376650-80-5 376650-81-6
 376650-82-7 376650-83-8 376650-84-9, Iminotris[(triaminophosphoranylidene)amino]phosphorane 376650-85-0, Iminotris[(trimethylphosphoranylidene)amino]phosphorane 376650-86-1,
 Iminotris[(triaminophosphoranylidene)methyl]phosphorane 376650-87-2
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 376650-99-6 376651-00-2 376651-01-3, Triamino(isopropylidene)phosphorane 376651-02-4, Trihydrazino(methylene)phosphorane 376651-03-5
 376651-04-6 376651-05-7 376651-06-8 376651-07-9 376651-08-0,
 (Methylene)((phosphoranylidene)amino)phosphorane 376651-09-1
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 376651-16-0 376651-17-1 376651-18-2 376651-19-3 376651-20-6
 376651-21-7 376651-22-8 376651-23-9 376651-24-0,
 Methylenetris[(triaminophosphoranylidene)amino]phosphorane
 376651-25-1, Methylenetris[(triaminophosphoranylidene)methyl]phosphorane 376651-26-2, Methylenetris[(trimethylphosphoranylidene)amino]phosphorane 376651-27-3, Methylenetris[(trimethylphosphoranylidene)methyl]phosphorane 376651-28-4 376651-29-5 376651-30-8 376651-31-9
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 (Phosphinimino)phosphorane 376651-38-6,
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 376651-47-7 376651-48-8 376651-49-9 376651-50-2 376651-51-3
 376651-52-4 376651-53-5, Sulfur(1+), amidotetrahydro- 376651-54-6,
 Sulfur(1+), pentaamido- 376651-55-7 376651-56-8 376651-57-9
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 376651-72-8, Sulfur(1+), tetraamidomethyl- 376651-73-9 376651-74-0
 376651-75-1 376651-76-2 376651-77-3 376651-78-4 376651-79-5
 376651-80-8 376651-81-9 376651-82-0 376651-83-1 376651-84-2
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 (theor. study of intrinsic basicities of phosphorus imines and
 ylides and related mols.)

REFERENCE COUNT: 50 THERE ARE 50 CITED REFERENCES AVAILABLE FOR
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE
 RE FORMAT

L36 ANSWER 4 OF 15 HCPLUS COPYRIGHT 2008 ACS on STN
 ACCESSION NUMBER: 2000:133496 HCPLUS [Full-text](#)
 DOCUMENT NUMBER: 132:317184
 TITLE: Cis-trihydrogen cyclotriphosphazenes-acidic
 anions in strongly basic media
 AUTHOR(S): Lawson, Gavin T.; Rivals, Frederic; Tascher,
 Mathieu; Jacob, Chacko; Bickley, Jamie F.;
 Steiner, Alexander
 CORPORATE SOURCE: Dep. Chem., University of Liverpool, Liverpool,

SOURCE: L69 7ZD, UK
 Chemical Communications (Cambridge) (2000), (5),
 341-342
 CODEN: CHCOFS; ISSN: 1359-7345
 PUBLISHER: Royal Society of Chemistry
 DOCUMENT TYPE: Journal
 LANGUAGE: English

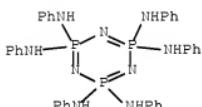
ED Entered STN: 25 Feb 2000

AB Exclusively cis-protonation occurs at axial N-atoms of chair shaped P3N9 ring cores in the protolysis of the Li salt of hexaanionic cyclotriphosphazenate $[(\text{CyN})_6\text{P}_3\text{N}_3]^{6-}$ (Cy = cyclohexyl) with three equivalent of butan-1-ol. Cis-deprotonation takes place at the hexaprotonic cyclotriphosphazene $(\text{PhNH})_6\text{P}_3\text{N}_3$ with three equivalent of BuLi, resp., yielding both times Li salts of cis-trihydrogen cyclotriphosphazenes $[(\text{RNH})_3(\text{RN})_3\text{P}_3\text{N}_3]^{3-}$ (R = Cy, Ph). The crystal and mol. structures of $[(\text{CyNH})_6(\text{CyN})_3\text{P}_3\text{N}_3\text{Li}_3]_2\cdot\text{PhMe}$ and $[(\text{PhNH})_6(\text{PhN})_3\text{P}_3\text{N}_3\text{Li}_3(\text{THF})_6]\cdot\text{c ntdot.4THF}$ are reported.

IT 134435-36-2P 176513-95-4P
 (preparation, protonation and deprotonation)

RN 134435-36-2 HCPLUS

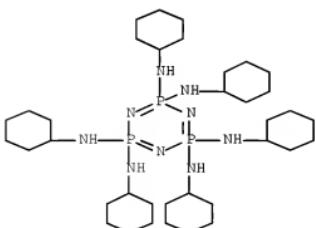
CN 1,3,5,2,4,6-Triazatrifosphorine, 2,2,4,4,6,6-hexahydro-2,2,4,4,6,6-hexakis(phenylamino)-, hexolithium salt (9CI) (CA INDEX NAME)



●₆ Li

RN 176513-95-4 HCPLUS

CN 1,3,5,2,4,6-Triazatrifosphorine, 2,2,4,4,6,6-hexakis(cyclohexylamino)-2,2,4,4,6,6-hexahydro-, hexolithium salt (9CI) (CA INDEX NAME)



●₆ Li

CC 78-7 (Inorganic Chemicals and Reactions)
 Section cross-reference(s): 75

IT 134435-36-2P 176513-95-4P

(preparation, protonation and deprotonation)

REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE
 RE FORMAT

L36 ANSWER 5 OF 15 HCPLUS COPYRIGHT 2008 ACS on STN
 ACCESSION NUMBER: 1998:625562 HCPLUS Full-text
 DOCUMENT NUMBER: 129:339029
 ORIGINAL REFERENCE NO.: 129:68921a,68924a
 TITLE: Phosphorus oxonitridosodalites: synthesis using a
 molecular precursor and structural investigation
 by x-ray and neutron powder diffraction and 31P
 MAS NMR spectroscopy
 AUTHOR(S): Stock, Norbert; Irran, Elisabeth; Schnick,
 Wolfgang
 CORPORATE SOURCE: Laboratorium Anorganische Chemie Universitat,
 Bayreuth, D-95440, Germany
 SOURCE: Chemistry--A European Journal (1998), 4(9),
 1822-1828
 CODEN: CEUJED; ISSN: 0947-6539
 PUBLISHER: Wiley-VCH Verlag GmbH
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 ED Entered STN: 05 Oct 1998
 AB The oxonitridophosphates $M_8\text{-mHm[P12N18O6]Cl}_2$ ($M = \text{Cu, Li}$) with a sodalite-like
 $[\text{P12N18O6}]_6$ - framework of corner-sharing PN3O tetrahedra were synthesized by
 the reaction of the resp. metal chlorides with $(\text{NH}_2)_2\text{P}(\text{O})\text{NP}(\text{NH}_2)_3 \cdot \text{NH}_4\text{Cl}$. In
 this precursor the desired molar ratio, $\text{P}:\text{O} = 2:1$, of the $[\text{P12N18O6}]_6$ -
 framework structure was preorganized on a mol. level. Analogous
 oxonitridosodalites also were obtained from the metal salts MX ($M = \text{Cu, Li}; X = \text{Cl, Br, I}$) or Li_2S , the P/O and P/N components $\text{OP}(\text{NH}_2)_3$ or HPN_2 , and NH_4X or
 MX as halogen sources. The crystal structures of the phosphorus
 oxonitridosodalites $\text{Cu}_4.8\text{H}_3.2[\text{P12N18O6}]Cl_2$ (1), $\text{Li}_5.5\text{H}_2.5[\text{P12N18O6}]Cl_2$ (2),
 $\text{Li}_6.2\text{H}_1.8[\text{P12N18O6}]Br_2$ (3), and $\text{Li}_5.8\text{H}_2.2[\text{P12N18O6}]I_2$ (4) were studied by
 using neutron and x-ray powder diffraction as well as 31P MAS NMR
 spectroscopy. Rietveld refinements were performed in the cubic space group
 $I.\text{h}\text{ivin}.43m$ ($Z = 1$, $a = 820.25(1)$ to $830.81(2)$ pm for $X = \text{Cl}$ to I). No exptl.
 evidence for a crystallog. ordering of the N/O atoms and for other than PN3O
 tetrahedra in the sodalite frameworks was obtained.
 IT 182505-10-8P
 (for preparation of copper and lithium phosphorus
 oxonitridosodalites using a mol. precursor)
 RN 182505-10-8 HCPLUS
 CN Iminoimidodiphosphoramido, compd. with ammonium chloride ((NH_4Cl)
 (1:1) (9CI) (CA INDEX NAME)
 CM 1
 CRN 85586-91-0
 CMF H10 N6 O P2



CM 2

CRN 12125-02-9
CME Cl H4 N

Cl-H4

CC 78-6 (Inorganic Chemicals and Reactions)
 Section cross-reference(s): 75
 ST crystal structure copper lithium phosphorus
 oxonitridosodalite; phosphorus copper lithium
 oxonitridosodalite prepn structure; oxonitridophosphate copper
 lithium sodalite prepn structure
 IT Crystal structure
 Molecular structure
 (of copper and lithium phosphorus oxonitridosodalites)
 IT 13597-72-3, Phosphoric triamide
 (for preparation of copper and lithium phosphorus
 oxonitridosodalites)
 IT 7664-41-7, Ammonia, reactions 7783-20-2, Ammonium sulfate
 ((NH4)2SO4), reactions 10026-13-8, Phosphorus chloride (PC15)
 (for preparation of copper and lithium phosphorus
 oxonitridosodalites using a mol. precursor)
 IT 13966-08-0P 182505-10-8P
 (for preparation of copper and lithium phosphorus
 oxonitridosodalites using a mol. precursor)
 IT 10377-51-2, Lithium iodide (LiI) 12124-97-9, Ammonium
 bromide 12136-58-2, Lithium sulfide (Li2S) 13455-05-5,
 Phosphorothioic triamide
 (for preparation of lithium phosphorus oxonitridosodalite)
 IT 7447-41-8, Lithium chloride, reactions
 (for preparation of lithium phosphorus oxonitridosodalite
 using a mol. precursor)

REFERENCE COUNT: 35 THERE ARE 35 CITED REFERENCES AVAILABLE FOR
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE
 RE FORMAT

L36 ANSWER 6 OF 15 HCPLUS COPYRIGHT 2008 ACS on STN
 ACCESSION NUMBER: 1996:211366 HCPLUS Full-text.
 DOCUMENT NUMBER: 124:330719
 ORIGINAL REFERENCE NO.: 124:61031a,61034a
 TITLE: Hexolithiated hexakis(cyclohexylamino)cyclotriphosphazene; a (Li+)₁₂ cage containing puckered
 [NP(NCy)₂]₃₆⁻ ions

AUTHOR(S): Steiner, Alexander; Wright, Dominic S.
 CORPORATE SOURCE: Univ. Chem. Lab., Cambridge, CB2 1EW, UK
 SOURCE: Angewandte Chemie, International Edition in
 English (1996), 35(6), 636-7
 CODEN: ACIEAY; ISSN: 0570-0833

PUBLISHER: VCH
 DOCUMENT TYPE: Journal
 LANGUAGE: English

ED Entered STN: 12 Apr 1996

AB The deprotonation of hexakis(cyclohexylamino)cyclotriphosphazene (H6L) with
 BuLi in the presence of tetramethylethylenediamine (TMEDA) gave [Li6L(TMEDA)3]

(I) which on crystallization from THF/hexane gave $[Li_6L(THF)_2]_2 \cdot 2.5THF$ (II). I was characterized by IR spectra. II is monoclinic, space group C2/c, $Z = 4$, $R = 0.067$, $R_w = 0.178$. II has a centrosym. dimeric cage structure in which 12 Li cations are complexed by 2 chair-shaped L_6^- ions and by 4 THF's. The central core of the mol. of II is that of an approx. D3d sym. polyhedron, formed by the interaction of the ring N and equatorially substituted NCy groups of the 2 L_6^- with 6 Li centers. Each metal center is coordinated by a bidentate N(ring)-P-N(eq) chelate system from 1 anion and by a further N(eq) interaction from another anion. The remaining Li cations are accommodated at the other P3N3 faces of each of the hexaanions.

IT 176513-96-5P

(preparation of)

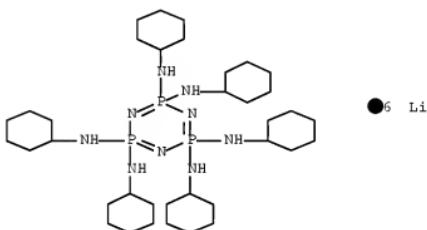
RN 176513-96-5 HCPLUS

CN 1,2-Ethanediamine, N,N,N',N'-tetramethyl-, compd. with 2,2,4,4,6,6-hexakis(cyclohexylamino)-2,2,4,4,6,6-hexahydro-1,3,5,2,4,6-triazatrichosphorine hexolithium salt (3:1) (9CI) (CA INDEX NAME)

CM 1

CRN 176513-95-4

CMF C36 H72 N9 P3 . 6 Li



CM 2

CRN 110-18-9

CMF C6 H16 N2



CC 78-7 (Inorganic Chemicals and Reactions)

Section cross-reference(s): 75

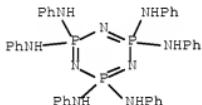
IT 176513-96-5P

(preparation of)

L36 ANSWER 7 OF 15 HCPLUS COPYRIGHT 2008 ACS on STN
 ACCESSION NUMBER: 1991:429615 HCPLUS Full-text
 DOCUMENT NUMBER: 115:29615

ORIGINAL REFERENCE NO.: 115:5221a, 5224a
 TITLE: Pseudochalcogen compounds. XXVI. Reactions of organocyanamides, RNHCN (R = isopropyl) and silver phenylcyanamide, with hexachlorocyclotriphosphazene

AUTHOR(S): Jaeger, L.; Ahmed, S.; Koehler, H.
 CORPORATE SOURCE: Sekt. Chem., Martin-Luther-Univ., Halle/Saale, 0-4010, Germany
 SOURCE: Zeitschrift fuer Anorganische und Allgemeine Chemie (1990), 591, 118-24
 DOCUMENT TYPE: Journal
 LANGUAGE: German
 OTHER SOURCE(S): CODEN: ZAACAB; ISSN: 0044-2313
 Entered STN: 27 Jul 1991
 AB Reactions of organocyanamides, RNHCN (R = CHMe₂) and Ag[RNCN] (R = Ph), with P₃N₃C₁₆ yield compds. of the type P₃N₃C_{16-n}[N(CN)R]_n. For these organocyanamides, a nongeminal (R = CHMe₂, n = 3) and geminal (R = Ph, n = 2, 6) mode of chlorine replacement was observed. The bonding of the cyanamide substituents, P-N(CN)R, is confirmed by IR data as well as by a modified synthetic route.
 IT 134435-36-2
 (reaction of, with bromocyanogen)
 RN 134435-36-2 HCAPLUS
 CN 1,3,5,2,4,6-Triazatrichosphorine, 2,2,4,4,6,6-hexahydro-2,2,4,4,6,6-hexakis(phenylamino)-, hexolithium salt (9CI) (CA INDEX NAME)

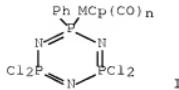


●6 Li

CC 29-14 (Organometallic and Organometalloidal Compounds)
 IT 14026-38-1 134435-36-2
 (reaction of, with bromocyanogen)

L36 ANSWER 8 OF 15 HCAPLUS COPYRIGHT 2008 ACS on STN
 ACCESSION NUMBER: 1986:608979 HCAPLUS [Full-text](#)
 DOCUMENT NUMBER: 105:208979
 ORIGINAL REFERENCE NO.: 105:33703a,33706a
 TITLE: Synthesis and structure of transition-metal-bound phosphazenes derived from phosphazene anions
 AUTHOR(S): Allcock, Harry R.; Mang, Michael N.; Riding, Geoffrey H.; Whittle, Robert R.
 CORPORATE SOURCE: Dep. Chem., Pennsylvania State Univ., University Park, PA, 16802, USA
 SOURCE: Organometallics (1986), 5(11), 2244-50
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 OTHER SOURCE(S): CODEN: ORGND7; ISSN: 0276-7333
 CASREACT 105:208979

ED Entered STN: 13 Dec 1986
 GI

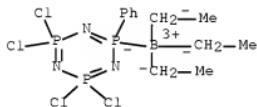


AB 1-Phenyl-1-(carbonylcyclopentadienylmetallic)-3,3,5,5-tetrachlorocyclotriphosphazenes I (M = Cr, Mo, W, Ru, Fe; n = 2, 3) were prepared by the interaction of Li 1-phenyl-3,3,5,5-tetrachlorocyclotriphosphazene-1-yl)triethylborate (II) with MCp(CO)nI (Cp = $\eta^5\text{-C}_5\text{H}_5$) in THF in yields ranging from 15% to 100%. II is in equilibrium with Li 1-phenyl-3,3,5,5-tetrachlorocyclotriphosphazene (III), a reactive species with a P(III) center. The P(III) center in III reacts with CrCp(CO)3I, MoCp(CO)3I, WCp(CO)3I, and RuCp(CO)2I by a carbonyl substitution pathway to give a thermally unstable anionic metallophosphazene in competition with the formation of I. The structural features of I were examined by x-ray crystal structures.

IT 86727-36-6P
 (preparation and reaction with transition metal iodides)

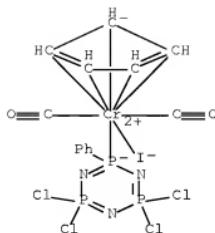
RN 86727-36-8 HCAPLUS

CN Borate(1-), triethyl(2,2,4,4-tetrachloro-2,2,4,4,6,6-hexahydro-6-phenyl-1,3,5,2,4,6-triazatriphosphorinato- κP_6)-, lithium, (T-4)- (9CI) (CA INDEX NAME)



● Li^+

IT 104323-06-0P
 (preparation of)
 RN 104323-06-0 HCAPLUS
 CN Chromate(1-), dicarbonyl(η^5 -2,4-cyclopentadien-1-yl)iodo(2,2,4,4-tetrachloro-2,2,4,4,6,6-hexahydro-6-phenyl-1,3,5,2,4,6-triazatriphosphorinato-P6)-, lithium (9CI) (CA INDEX NAME)



● Li⁺

CC 29-1 (Organometallic and Organometalloidal Compounds)
Section cross-reference(s): 75

IT 86727-36-8^P
(preparation and reaction with transition metal iodides)
IT 104322-06-0^P
(preparation of)

L36 ANSWER 9 OF 15 HCPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1984:6827 HCPLUS Full-text

DOCUMENT NUMBER: 100:6827

ORIGINAL REFERENCE NO.: 100:1179a,1182a

TITLE: Iron-bound cyclotriphosphazenes derived from phosphazene anions. X-ray crystal structure of N3P3C14(Me)[Fe(CO)2(C5H5)]

AUTHOR(S): Nissan, Robin A.; Connolly, Mark S.; Mirabelli, Mario G. L.; Whittle, Robert R.; Allcock, Harry R. Dep. Chem., Pennsylvania State Univ., University Park, PA, 16802, USA

CORPORATE SOURCE: Journal of the Chemical Society, Chemical Communications (1983), (15), 822-4
CODEN: JCCCAT; ISSN: 0022-4936

DOCUMENT TYPE: Journal
LANGUAGE: English

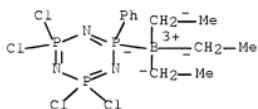
ED Entered STN: 12 May 1984

GI



AB Lithiation of phosphazene I (R = Me, R1 = H) with MeLi in THF at -78° followed by coupling reaction with [FeI(CO)2(η5-Cp)] (II; Cp = cyclopentadienyl) in THF gave I [R = Me, R1 = Fe(CO)2Cp] (III). The analogous compound I [R = Ph, R1 =

Fe(CO)2CpI was prepared by cleavage of dimer IV with LiBEt3H followed by coupling with II. The structure of III was determined by x-ray crystallog.
 IT 86727-36-8P
 (preparation and coupling reaction of, with dicarbonylcyclopentadienylidoiron)
 RN 86727-36-8 HCPLUS
 CN Borate(1-), triethyl(2,2,4,4-tetrachloro-2,2,4,4,6,6-hexahydro-6-phenyl-1,3,5,2,4,6-triazatriphosphorinato- κ P6)-, lithium, (T-4)-(9CI) (CA INDEX NAME)



● Li⁺

CC 29-14 (Organometallic and Organometalloidal Compounds)
 Section cross-reference(s): 75

IT 77217-61-9P 86727-36-8P
 (preparation and coupling reaction of, with dicarbonylcyclopentadienylidoiron)

L36 ANSWER 10 OF 15 HCPLUS COPYRIGHT 2008 ACS on STN
 ACCESSION NUMBER: 1983:558889 HCPLUS [Full-text](#)

DOCUMENT NUMBER: 99:158889

ORIGINAL REFERENCE NO.: 99:24381a,24382a

TITLE: Synthesis of 1-halo- and 1-alkyl-1-phenyltetrachlorocyclotriphosphazene polymerization "monomers" from bi(cyclophosphazenes)

AUTHOR(S): Allcock, Harry R.; Connolly, Mark S.; Whittle, Robert R.

CORPORATE SOURCE: Dep. Chem., Pennsylvania State Univ., University Park, PA, 16802, USA

SOURCE: Organometallics (1983), 2(11), 1514-23
 CODEN: ORGND7; ISSN: 0276-7333

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 99:158889

ED Entered STN: 12 May 1984

AB A new synthetic route was developed for the preparation of 1-halo- and 1-alkyl-1-phenyltetrachlorocyclotriphosphazenes of general formula N3P3Cl4RPh where R = Cl, Br, I, Me, Et, Pr, Bu, iso Pr, or CH₂CH:CH₂. These compds. are prospective polymerization monomers, most of which cannot be prepared by other routes. The synthetic procedure involves the interaction of 1,1'-diphenyl-3,3,3',3',5,5,5',5'-octachlorobi(cyclotriphosphazene) [21229-71-0] with LiBEt₃H [22560-16-3] to give a triethylborane-substituted anion [86727-36-8]. The anion reacts with proton-releasing agents to give 1-hydrido-1-phenyltetrachlorocyclotriphosphazene (I) [81098-53-5] or with alkyl halides to give 1-alkyl monomers. I reacts with halogen in CCl₄ to give 1-halo monomers. Alternatively, the 1-halo monomers can be prepared via the reaction of the

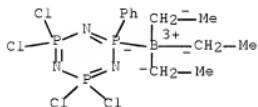
anion with CCl_4 or CHBr_3 . The structural characterization of these compds. by spectroscopic and mass spectrometric techniques is discussed, together with the reaction mechanism.

IT 86727-36-8P

(formation and reaction of, with proton-releasing agents)

RN 86727-36-8 HCAPLUS

CN Borate(1-), triethyl(2,2,4,4-tetrachloro-2,2,4,4,6,6-hexahydro-6-phenyl-1,3,5,2,4,6-triazatrichlorophosphorinato- κ P6)-, lithium, (T-4)-(9CI) (CA INDEX NAME)



CC 35-2 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 29

IT 86727-36-8P

(formation and reaction of, with proton-releasing agents)

L36 ANSWER 11 OF 15 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1982:582652 HCAPLUS Full-text

DOCUMENT NUMBER: 97:182652

ORIGINAL REFERENCE NO.: 97:30565a, 30568a

TITLE: Phosphazenes with olefinic side groups: proton abstraction reactions of fluoroalkoxy derivatives
Allcock, Harry R.; Suszko, Paul R.; Evans, Thomas L.

AUTHOR(S): Allcock, Harry R.; Suszko, Paul R.; Evans, Thomas L.

CORPORATE SOURCE: Dep. Chem., Pennsylvania State Univ., University Park, PA, 16802, USA

SOURCE: Organometallics (1982), 1(11), 1443-9
CODEN: ORGND7; ISSN: 0276-7333

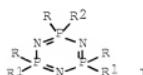
DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 97:182652

ED Entered STN: 12 May 1984

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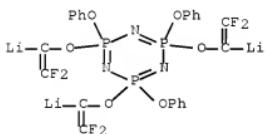
AB Cyclic phosphazenes I ($R = R_1 = \text{PhO}$, $R_2 = \text{CF}_3\text{CH}_2\text{O}$; $R = \text{PhO}$, $\text{CF}_3\text{CH}_2\text{O}$, $R_1 = R_2 = \text{CF}_3\text{CH}_2\text{O}$) undergo dehydrofluorination and deprotonation on treatment with BuLi

at -78° to give I ($R = R1 = \text{PhO}$, $R2 = \text{CF}_2:\text{Cl}_2\text{O}$; $R = \text{PhO}$, $\text{CF}_2:\text{Cl}_2\text{O}$, $R1 = R2 = \text{CF}_2:\text{Cl}_2\text{O}$). These species are stable in solution at -78° but react with electrophiles such as Me_2CHOH , Me_2CHOD , MeI or Ph_3SnCl to yield the cyclophosphazenes with $-\text{OCH}:\text{CF}_2$, $-\text{OCD}:\text{CF}_2$, $-\text{OCMe}:\text{CF}_2$ or $-\text{OC}(\text{SnPh}_3):\text{CF}_2$ side groups, resp. Comparisons are made with the reactions between BuLi and trifluoroethoxy-substituted cyclic tetrameric and higher-polymeric phosphazenes.

IT 82918-25-0P 82932-64-7P
(preparation and reaction of, with electrophiles)

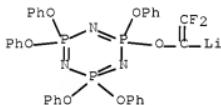
RN 82918-25-0 HCAPLUS

CN 1,3,5,2,4,6-Triazatrichosphorine, 2,4,6-tris[(2,2-difluoro-1-lithioethenyl)oxy]-2,2,4,4,6,6-hexahydro-2,4,6-triphenoxy-, stereoisomer (9CI) (CA INDEX NAME)



RN 82932-64-7 HCAPLUS

CN 1,3,5,2,4,6-Triazatrichosphorine, 2-[(2,2-difluoro-1-lithioethenyl)oxy]-2,2,4,4,6,6-hexahydro-2,4,4,6,6-pentaphenoxy- (9CI)
(CA INDEX NAME)



CC 29-14 (Organometallic and Organometalloidal Compounds)

IT 82918-25-0P 82932-64-7P
(preparation and reaction of, with electrophiles)

L36 ANSWER 12 OF 15 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1981:614369 HCAPLUS Full-text

DOCUMENT NUMBER: 95:214369

ORIGINAL REFERENCE NO.: 95:35657a, 35660a

TITLE: The formation and reactions of carbanionic derivatives of methyl phosphazenes

AUTHOR(S): Gallicano, Keith D.; Oakley, Richard T.; Paddock, Norman L.; Sharma, Rajendra D.

CORPORATE SOURCE: Dep. Chem., Univ. British Columbia, Vancouver, BC, V6T 1Y5, Can.

SOURCE: Canadian Journal of Chemistry (1981), 59(17), 2654-64

CODEN: CJCHAG; ISSN: 0008-4042

DOCUMENT TYPE:

Journal

LANGUAGE:

English

OTHER SOURCE(S):

CASREACT 95:214369

ED Entered STN: 12 May 1984

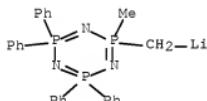
AB The cyclic phosphazenes N3P3Ph4Me2, N3P3Me6, and N4P4Me8 were deprotonated by LiR (R = alkyl). The resulting carbanions reacted with monofunctional electrophiles to form phosphazenes carrying the groups PCH2R' (R' = Me, Br, I, PhC(O), CO2H, AsMe2, Me3M (M = Si, Ge, Sn)). Two phosphazenyI groups can be joined either by the use of a difunctional halide or by oxidative coupling of organo-Cu derivs. The formation of the carbanions, the extent of deprotonation, substituent orientation, and the dependence of reactivity on ring size, are interpreted in terms of a balance between π -electron energies and electrostatic interactions.

IT 79807-05-9

(reaction of, with monofunctional electrophiles)

RN 79807-05-9 HCAPLUS

CN Lithium, [(2,2,4,4,6,6-hexahydro-2-methyl-4,4,6,6-tetraphenyl-1,3,5,2,4,6-triazatrifosphorin-2-yl)methyl]- (9CI) (CA INDEX NAME)



CC 78-8 (Inorganic Chemicals and Reactions)

IT 79807-05-9 79807-06-0

(reaction of, with monofunctional electrophiles)

L36 ANSWER 13 OF 15 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1980:198467 HCAPLUS Full-text

DOCUMENT NUMBER: 92:198467

ORIGINAL REFERENCE NO.: 92:32159a,32162a

TITLE: Phosphazenes. LXVI. Phosphorus-31 NMR studies. XI. Preparation of cyclotriphosphazene derivatives via the corresponding lithium compound and unfolding of a phosphorus-31 NMR spectrum by a shift reagent

AUTHOR(S): Hoegel, J.; Schmidpeter, A.

CORPORATE SOURCE: Inst. Anorg. Chem., Univ. Munich, Munich, D-8000/2, Fed. Rep. Ger.

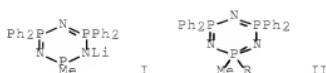
SOURCE: Zeitschrift fuer Anorganische und Allgemeine Chemie (1979), 458, 168-76
CODEN: ZAACAB; ISSN: 0044-2313

DOCUMENT TYPE: Journal

LANGUAGE: German

ED Entered STN: 12 May 1984

GI



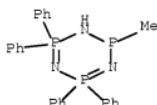
AB The reaction of lithiated cyclotriposphazene I with RCl gave 33-90% II [R = Me₃Si, Me₃Sn, Me₂P:NSO₂C₆H₄-Me-p, Me₂PS(III), Ph₂PS]. In III the 2 31P nuclei of the biphosphine group are nearly isochronous and their NMR signals as well as those of the Me proton are therefore degenerate. Using a shift reagent, the shift difference can be increased by more than a factor of 10 and the degeneracy removed.

IT 73577-46-5

(reactions of, with phosphinyl chlorides)

BN 73577-46-5 HCARLUS

RN 73377-46-5 HCAFL03
CN 1,3,5,2,4,6-Triazatrichosphorine, 1,2,2,4,4,6-hexahydro-6-methyl-2,2,4,4-tetraphenyl- lithium salt (9CI) (CA INDEX NAME)



10

CC 29-7 (Organometallic and Organometalloid Compounds)

CC 25-7 (02ga)
IT 73577-46-5

(reactions of with phosphinyl chlorides)

1.36 ANSWER 14 OF 15 HCARLUS COPYRIGHT 2008 ACS OR STN

EEG ANSWER 14 OF 15 HCAP1000 COPYRIGHT 2000 ACS ON SIN
ACCESSION NUMBER: 1980-123278 HCAP1000 Full-text

ACCESSION NUMBER: 1980.173
DOCUMENT NUMBER: 82-173378

DOCUMENT NUMBER: 92-175779
ORIGINAL REFERENCE NO.: 82-38011a 38014a

ORIGINAL REFERENCE NO.: 92-26011a, 26014a
TITLE: Small-molecule cyclic models for the synthesis of
new polyphosphazenes: side-group construction via
lithiophenoxy derivatives

AUTHOR(S): Allcock, H. B.; Evans, T. L.; Fuller, T. J.

AUTHOR(S): ALCOCK, H. R., EVANS, T. B., FULLER, T. S.
CORPORATE SOURCE: Dep. Chem., Pennsylvania State Univ., University Park, PA 16802 USA

SOURCE: Inorganic Chemistry (1980), 19(4), 1026-30
TALK, TA, 1980, USA
CODEN: INOCALI ISSN: 0020-1669

DOCUMENT TYPE: CODER: INCCAS, ISSN: 0020-1669
Journal

DOCUMENT TYPE: Journal
LANGUAGE: English

LANGUAGE: English
ED. Entered CTN: 13 May 1984

ED ENTERED SIN: 12 May 1984
BB *Houzia (s. lithianthos) sp.*

AB Hexakis(p-triethoxyphenoxy)benzene

prepared as an intermediate for the covalent attachment of metallo-, phosphino-, carboxylato, alkyl, or tertiary alc. units to the side-group structure. These reactions are models for the preparation of the corresponding phosphazene high polymers. Intermediate I was prepared by the metal-halogen exchange reaction between $[NP(OC_6H_4Br-p)2]_3$ (II) or $[NP(OC_6H_4I-p)2]_3$ and BuLi in THF at -40 to -

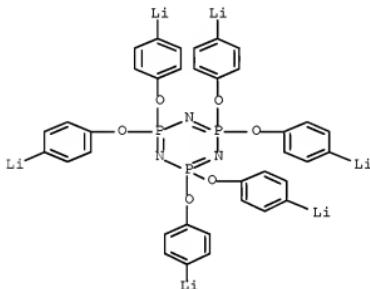
60°. The subsequent interaction of I with D₂O, Ph₂PCl, CO₂, BuBr, benzophenone, Ph₃SnCl, or (Ph₃P)AuCl yielded the para-substituted derivs. [NP(OC₆H₄D₂)₂]₃ (III), [NP(OC₆H₄PPh₂)₂]₃ (IV), [NP(OC₆H₄CO₂H)₂]₃ (V), [NP(OC₆H₄Bu)₂]₃ (VI), [NP(OC₆H₄(OH)Ph₂)₂]₃ (VII), [NP(OC₆H₄SnPh₃)₂]₃ (VIII), and [NP(OC₆H₄AuPh₃)₂]₃ (IX), resp. Compds. III-IX cannot be obtained readily by their synthetic routes. For example, the reaction of II with NaPPh₂ is a less efficient route to the preparation of IV. Compound IV is a model coordination carrier species for transition-metal catalysts. The possible extension of these reactions to linear phosphazene high polymers is discussed.

IT 69322-59-4P

(preparation and substitution reactions of, with
chlorodiphenylphosphine, chlorotriphenylstannane, and carbon
dioxide)

RN 69322-59-4 HCPLUS

CN 1,3,5,2,4,6-Triazatrichosphorine, 2,2,4,4,6,6-hexahydro-2,2,4,4,6,6-hexakis(4-lithiophenoxy)- (9CI) (CA INDEX NAME)

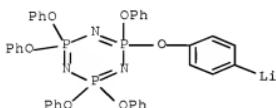


IT 72796-21-5P

(preparation of)

RN 72796-21-5 HCPLUS

CN Lithium, [4-[(4,4,6,6-tetrahydro-2,4,4,6,6-pentaphenoxy-1,3,5,2,4,6-triazatrichosphorin-2(2H)-yl)oxy]phenyl]- (9CI) (CA INDEX NAME)



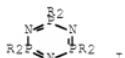
CC 78-8 (Inorganic Chemicals and Reactions)
Section cross-reference(s): 67

IT 69322-59-4P

(preparation and substitution reactions of, with
chlorodiphenylphosphine, chlorotriphenylstannane, and carbon

dioxide)
 IT 5032-39-3P 72796-21-5P 72796-22-6P 72811-83-7P
 72827-45-3P
 (preparation of)

L36 ANSWER 15 OF 15 HCPLUS COPYRIGHT 2008 ACS on STN
 ACCESSION NUMBER: 1979:121689 HCPLUS Full-text
 DOCUMENT NUMBER: 90:121689
 ORIGINAL REFERENCE NO.: 90:19279a
 TITLE: Preparation of $[NP(p-OC_6H_4Li)_2]_3$ by metal-halogen exchange, and its reactions with electrophiles
 Evans, T. L.; Fuller, T. J.; Alcock, H. R.
 Dep. Chem., Pennsylvania State Univ., University Park, PA, USA
 SOURCE: Journal of the American Chemical Society (1979), 101(1), 242
 CODEN: JACSAT; ISSN: 0002-7863
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 ED Entered STN: 12 May 1984
 GI

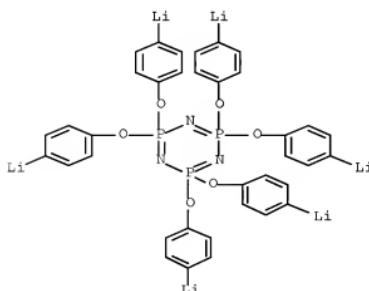


AB Treating I ($R = OC_6H_4Br-p$) with $BuLi$ in THF at -40° gave I ($R = OC_6H_4Li-p$) which react with electrophiles to give I ($R = OC_6H_4R1-p$; $R1 = D, CO_2H, PPh_2, SnPh_3$).

IT 69322-59-4P
 (preparation and reaction with electrophiles)

RN 69322-59-4 HCPLUS

CN 1,3,5,2,4,6-Triazatriphosphorine, 2,2,4,4,6,6-hexahydro-2,2,4,4,6,6-hexakis(4-lithiophenoxy)- (9CI) (CA INDEX NAME)



CC 29-2 (Organometallic and Organometalloidal Compounds)
Section cross-reference(s): 28
IT 59322-59-4P
(preparation and reaction with electrophiles)

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=> d que 145
L8      919149 SEA FILE=REGISTRY ABB=ON  PLU=ON  (P(L)N) /ELS
L10     895682 SEA FILE=REGISTRY ABB=ON  PLU=ON  L8 NOT PMS/CI
L11     2814 SEA FILE=REGISTRY ABB=ON  PLU=ON  L10 AND 46.716/RID AND
        46.150/RID
L12     15 SEA FILE=REGISTRY ABB=ON  PLU=ON  L11 AND LI/ELS
L17     105 SEA FILE=REGISTRY ABB=ON  PLU=ON  L10 AND IMINOIMIDODIPHOSP
        HORAMID?
L18     1 SEA FILE=REGISTRY ABB=ON  PLU=ON  L17 AND LI/ELS
L19     296678 SEA FILE=REGISTRY ABB=ON  PLU=ON  L8 AND X/ELS
L20     13143 SEA FILE=REGISTRY ABB=ON  PLU=ON  L19 AND PHOSPHORAMID?
L21     5238 SEA FILE=REGISTRY ABB=ON  PLU=ON  L20 AND (SI OR GE OR SN
        OR AS OR SB OR BI OR S OR SE OR TE OR PO)/ELS
L22     64 SEA FILE=REGISTRY ABB=ON  PLU=ON  L8 AND F/ELS AND
        3/ELC.SUB
L23     777044 SEA FILE=REGISTRY ABB=ON  PLU=ON  L8 AND O/ELS
L24     193937 SEA FILE=REGISTRY ABB=ON  PLU=ON  L23 AND (SI OR GE OR SN
        OR AS OR SB OR BI OR S OR SE OR TE OR PO)/ELS
L26     584 SEA FILE=REGISTRY ABB=ON  PLU=ON  L24 AND PHOSPHINIC
        AMIDE?
L27     13 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L12
L28     1 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L18
L29     13 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L27 OR L28
L30     45 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L17
L31     3 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L30 AND LITHIUM
L32     15 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L29 OR L31
L33     1 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L30 AND ELECTROLYT?
L34     QUE ABB=ON PLU=ON BATTERY? OR BATTERIES OR ELECTRODE#
        OR CATHODE# OR ANODE#
L35     1 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L30 AND L34
L36     15 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L32 OR L33 OR L35
L37     2188 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L21
L38     25626 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L20
L39     322 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L26
L40     337 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L22
L41     26191 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (L37 OR L38 OR L39 OR
        L40)
L42     155 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L41 AND L34
L43     48 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L42 AND ELECTROLYT?
L44     34 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L43 AND LITHIUM
L45     34 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L44 NOT L36
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L45 ANSWER 1 OF 34 HCAPLUS COPYRIGHT 2008 ACS on STN
 ACCESSION NUMBER: 2008:635752 HCAPLUS Full-text
 DOCUMENT NUMBER: 148:589356
 TITLE: Nonaqueous electrolyte solution
 containing ionic liquid and ester compound for
 battery and nonaqueous electrolyte
 battery
 INVENTOR(S): Otsuki, Masatomo; Kanno, Hiroshi
 PATENT ASSIGNEE(S): Bridgestone Corp., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 21pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2008123898	A	20080529	JP 2006-307945	20061114
PRIORITY APPLN. INFO.:			JP 2006-307945	20061114

OTHER SOURCE(S): MARPAT 148:589356

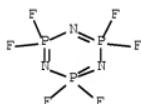
ED Entered STN: 29 May 2008

AB The electrolyte solution contains an ionic liquid having P:N bond and a carboxylate compound R1CO2R2 (I; R1 = C1-2 alkyl; R2 = C2-4 alkenyl, propargyl, alkyl; R1 and R2 may be bonded to form a ring) and/or a carbonate compound R3CO2R4 (II; R3 = C1-2 alkyl, Ph; R4 = alkenyl; R3 and R4 may be bonded to form a ring). The battery, especially a secondary Li battery, equipped with the electrolyte solution provides high safety.

IT 15599-91-4
(reaction of, with triethylamine; in preparation of ionic liquid for nonaq. electrolyte solution)

RN 15599-91-4 HCAPLUS

CN 1,3,5,2,4,6-Triazatrifosphorine, 2,2,4,4,6,6-hexafluoro-2,2,4,4,6,6-hexahydro- (CA INDEX NAME)



CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST nonaq electrolyte soln ionic liq carbonate ester
battery safety; carboxylate ester nonaq electrolyte
soln ionic liq batteryIT Carboxylic acids, uses
(esters; nonaq. electrolyte solution containing ionic liquid and ester compound for battery)IT Secondary batteries
(lithium; nonaq. electrolyte solution containing ionic liquid and ester compound for battery)IT Battery electrolytes
Ionic liquids
Safety

(nonaq. electrolyte solution containing ionic liquid and ester compound for battery)

IT Carbonates, uses
(nonaq. electrolyte solution containing ionic liquid and ester compound for battery)IT 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate
616-38-6, Dimethyl carbonate

(electrolyte solvent; nonaq. electrolyte solution containing ionic liquid and ester compound for battery)

IT 21324-40-3, Lithium hexafluorophosphate
(electrolyte; nonaq. electrolyte solution containing ionic liquid and ester compound for battery)

IT 79-20-9, Methyl acetate 591-87-7 25066-36-8
(nonaq. electrolyte solution containing ionic liquid and ester compound for battery)

IT 936347-48-7P 936347-51-2P
(preparation and reaction of; in preparation of ionic liquid for nonaq. electrolyte solution)

IT 1000026-75-4P 1027783-72-7P
(preparation of; nonaq. electrolyte solution containing ionic liquid and ester compound for battery)

IT 62-53-3, Aniline, reactions 121-44-8, Triethylamine, reactions 26042-63-7, Silver hexafluorophosphate
(reaction of, with cyclophosphazene; in preparation of ionic liquid for nonaq. electrolyte solution)

IT 15599-91-4
(reaction of, with triethylamine; in preparation of ionic liquid for nonaq. electrolyte solution)

L45 ANSWER 2 OF 34 HCPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2008:252286 HCPLUS Full-text
DOCUMENT NUMBER: 148:288561
TITLE: Nonaqueous electrolyte solution and nonaqueous battery
INVENTOR(S): Horikawa, Yasuo
PATENT ASSIGNEE(S): Bridgestone Corp., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 14pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2008047480	A	20080228	JP 2006-223889	20060821
PRIORITY APPLN. INFO.:			JP 2006-223889	20060821

OTHER SOURCE(S): MARPAT 148:288561

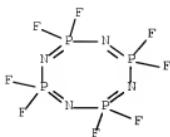
ED Entered STN: 29 Feb 2008

AB The electrolyte solution contains a cyclophosphazene compound (NPR12)_n (R1 = halo, alkoxy, aryloxy; n = 3-4), a nonaq. solvent containing a difluorophosphate ester compound R2OPPF2O (R2 = alkyl, cycloalkyl, alkenyl, alkoxy-substituted alkyl, or aryl), an alkyne compound R3C.tpbond.CR4 (R3 and R4 = H, C1-6 alkyl, C2-3 alkenyl or aryl), and an electrolyte salt. The electrolyte solution shows high nonflammability and the battery provides high safety under high-temperature environment.

IT 14700-00-6, Octafluorocyclotetraphosphazene
(electrolyte solvent; nonflammable nonaq. electrolyte solution for nonaq. battery)

RN 14700-00-6 HCPLUS

CN 2λ5,4λ5,6λ5,8λ5-1,3,5,7,2,4,6,8-
Tetrazatetraphosphocine, 2,2,4,4,6,6,8,8-octafluoro- (CA INDEX NAME)



CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 ST cyclophosphazene fluorophosphate alkyne compd nonaq
 electrolyte soln battery safety
 IT Secondary batteries
 (lithium; nonflammable nonaq. electrolyte solution
 for nonaq. battery)
 IT Battery electrolytes
 Fire-resistant materials
 Safety
 (nonflammable nonaq. electrolyte solution for nonaq.
 battery)
 IT Cyclophosphazenes
 (nonflammable nonaq. electrolyte solution for nonaq.
 battery)
 IT 96-48-0, γ -Butyrolactone 105-58-8, Diethyl carbonate
 (electrolyte solvent; nonaq. electrolyte solution
 and nonaq. battery)
 IT 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate
 460-52-6, Ethyl difluorophosphate 616-38-6, Dimethyl carbonate
 623-53-0, Ethyl methyl carbonate 1126-52-9 14700-00-6,
 Octafluorocyclotetraphosphazene 26078-17-1, Butyl difluorophosphate
 55593-39-0 93554-76-8 485399-26-6 607744-75-2 847485-19-2
 1003019-83-7 1006384-41-3 1007894-86-1
 (electrolyte solvent; nonflammable nonaq.
 electrolyte solution for nonaq. battery)
 IT 21324-40-3, Lithium hexafluorophosphate 132843-44-8,
 Lithium bis(pentafluoroethylsulfonyl)imide
 (electrolyte; nonflammable nonaq. electrolyte
 solution for nonaq. battery)
 IT 536-74-3, Phenylacetylene 23056-94-2, 2-Methyl-1-hexen-3-yne
 (nonaq. electrolyte solution and nonaq. battery)
 IT 673-32-5, 1-Phenyl-1-propyne 917-92-0, 3,3-Dimethyl-1-butyne
 7154-75-8, 4-Methyl-1-pentyne
 (nonflammable nonaq. electrolyte solution for nonaq.
 battery)

L45 ANSWER 3 OF 34 HCPLUS COPYRIGHT 2008 ACS on STN
 ACCESSION NUMBER: 2008:222511 HCPLUS [Full-text](#)
 DOCUMENT NUMBER: 148:266037
 TITLE: Nonflammable nonaqueous electrolyte
 solutions for batteries
 INVENTOR(S): Horikawa, Yasuo
 PATENT ASSIGNEE(S): Bridgestone Corp., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 14pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2008041296	A	20080221	JP 2006-210577	20060802
PRIORITY APPLN. INFO.:			JP 2006-210577	20060802

OTHER SOURCE(S): MARPAT 148:266037

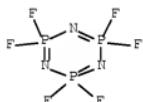
ED Entered STN: 22 Feb 2008

AB The electrolyte solns. contain cyclic phosphazenes (NPR12)_n (R1 = halo, alkoxy, aryloxy; n = 3-4), difluorophosphate esters R2OP(:O)F₂ (R2 = (cyclo)alkyl, alkenyl, alkoxy-substituted alkyl or aryl), sulfones R₃SO₂R₄ (R3-4 = C1-3 alkyl, alkenyl, phenyl; R3 and R4 may form ring), and supporting electrolytes. The solns., applicable for lithium batteries, show high fire resistance at high temperature and thereby high safety.

IT 15599-91-4
(fireproofing agents; in nonflammable nonaq. electrolyte solns. for batteries)

RN 15599-91-4 HCAPLUS

CN 1,3,5,2,4,6-Triazatrifosphorine, 2,2,4,4,6,6-hexafluoro-2,2,4,4,6,6-hexahydro- (CA INDEX NAME)



CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST battery nonflammable nonaq. electrolyte cyclic phosphazene difluorophosphate ester sulfone; lithium battery electrolyte cyclic phosphazene difluorophosphate ester sulfone fireproofing

IT Cyclophosphazenes

Sulfones
(fireproofing agents; in nonflammable nonaq. electrolyte solns. for batteries)

IT Safety
(in nonflammable nonaq. electrolyte solns. for batteries)

IT Primary batteries

Secondary batteries
(lithium; nonflammable nonaq. electrolyte solns. for batteries)

IT Battery electrolytes
(nonflammable nonaq. electrolyte solns. for batteries)

IT 77-77-0, Divinyl sulfone 126-33-0, Sulfolane 3680-02-2, Methyl vinyl sulfone 15599-91-4 16212-05-8, Allyl phenyl sulfone 21846-70-8 33027-68-8 55593-39-0 485399-27-7 593094-52-1
(fireproofing agents; in nonflammable nonaq. electrolyte solns. for batteries)

IT 460-52-6, Ethyl difluorophosphate 1126-52-9 22382-13-4, Methyl difluorophosphate 426264-80-4 1003019-82-6 1006384-41-3

(in nonflammable nonaq. electrolyte solns. for batteries)

L45 ANSWER 4 OF 34 HCAPLUS COPYRIGHT 2008 ACS on STN
 ACCESSION NUMBER: 2008:222308 HCAPLUS Full-text
 DOCUMENT NUMBER: 148:242917
 TITLE: Nonaqueous-electrolyte solution
 containing cyclofluorophosphazene,
 fluorophosphate, and unsaturated ester and
 nonaqueous battery
 INVENTOR(S): Horikawa, Yasuo
 PATENT ASSIGNEE(S): Bridgestone Corp., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 14pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2008041308	A	20080221	JP 2006-210792	20060802
PRIORITY APPLN. INFO.:			JP 2006-210792	20060802

OTHER SOURCE(S): MARPAT 148:242917

ED Entered STN: 22 Feb 2008

AB The electrolyte solution contains cyclic phosphazenes (NPR12)_n (R1 = halo, alkoxy, or aryloxy; n = 3 or 4) and difluorophosphate esters R20PF20 (R2 = alkyl, cycloalkyl, alkenyl, alkoxy-substituted alkyl or aryl) as nonaq. solvents, and unsatd. esters R3CO2R4 (R3 = C1-2 alkyl; R4 = C2-4 alkenyl or propargyl; R3 and R4 may be bonded to form a ring), and a supporting electrolyte. The electrolyte solution shows high fireproofing property and the battery provides high capacity after high-temperature storage and safety.

IT 14700-00-6, Octafluorocyclotetraphosphazene 15599-91-4
 (electrolyte solvent; nonaq.-electrolyte solution
 containing cyclofluorophosphazene, fluorophosphate, and unsatd. ester
 for battery)

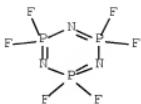
RN 14700-00-6 HCAPLUS

CN 2λ5,4λ5,6λ5,8λ5-1,3,5,7,2,4,6,8-
 Tetrazatetrrophosphocine, 2,2,4,4,6,6,8,8-octafluoro- (CA INDEX NAME)



RN 15599-91-4 HCAPLUS

CN 1,3,5,2,4,6-Triazatrichosphorine, 2,2,4,4,6,6-hexafluoro-2,2,4,4,6,6-hexahydro- (CA INDEX NAME)



CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 ST nonaq electrolyte soln cyclofluorophosphazene
 fluorophosphate unsatd ester battery safety
 IT Cyclophosphazenes
 (electrolyte solvent; nonaq.-electrolyte solution
 containing cyclofluorophosphazene, fluorophosphate, and unsatd. ester
 for battery)
 IT Secondary batteries
 (lithium; nonaq.-electrolyte solution containing
 cyclofluorophosphazene, fluorophosphate, and unsatd. ester for
 battery)
 IT Battery electrolytes
 Safety
 (nonaq.-electrolyte solution containing cyclofluorophosphazene,
 fluorophosphate, and unsatd. ester for battery)
 IT 96-48-0, γ -Butyrolactone 96-49-1, Ethylene carbonate
 108-32-7, Propylene carbonate 460-52-6, Ethyl difluorophosphate
 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate
 1126-52-9 14700-00-6, Octafluorocyclotetraphosphazene
 15599-91-4 22382-13-4, Methyl difluorophosphate 33027-68-8
 55593-39-0 55593-41-4 724792-60-3 1003019-82-6 1006384-41-3
 1006384-42-4 1006384-48-0
 (electrolyte solvent; nonaq.-electrolyte solution
 containing cyclofluorophosphazene, fluorophosphate, and unsatd. ester
 for battery)
 IT 21324-40-3, Lithium hexafluorophosphate 244761-29-3,
 Lithium bis(oxalato)borate
 (electrolyte; nonaq.-electrolyte solution containing
 cyclofluorophosphazene, fluorophosphate, and unsatd. ester for
 battery)
 IT 105-38-4, Vinyl propionate 591-87-7, Allyl acetate 627-09-8,
 Propargyl acetate 674-82-8, Diketene
 (nonaq.-electrolyte solution containing cyclofluorophosphazene,
 fluorophosphate, and unsatd. ester for battery)

L45 ANSWER 5 OF 34 HCPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2008:38139 HCPLUS Full-text

DOCUMENT NUMBER: 148:144881

TITLE: Preparation of lithium salts for
 lithium secondary batteries

INVENTOR(S): Yamamoto, Takashi; Matsui, Masaki

PATENT ASSIGNEE(S): Toyota Motor Corp., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 12pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

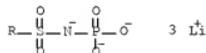
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2008001672	A	20080110	JP 2006-175407	20060626
PRIORITY APPLN. INFO.:			JP 2006-175407	20060626

OTHER SOURCE(S): CASREACT 148:144881; MARPAT 148:144881

ED Entered STN: 10 Jan 2008

GI



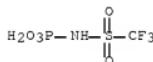
I

AB Li salts I (R = fluoroalkyl, alkyl, phenyl), which show increased Li transport when used as supporting electrolytes for Li secondary batteries, are prepared by reacting RSO₂NHP(O)(OH)₂ (II; R = same as above) with basic Li compds. Thus, MeOH solution of LiOH was added dropwise to EtOH solution of II (R = CF₃) (preparation given) and the reaction mixture was stirred at room temperature overnight to give I (R = CF₃).

IT 1001025-42-8P

(preparation of Li salts as supporting electrolytes for Li secondary batteries by reacting
(fluoroalkylsulfonyl)phosphoramidic acids with basic Li compds)

RN 1001025-42-8 HCPLUS

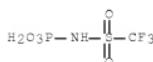
CN Phosphoramidic acid, N-[(trifluoromethyl)sulfonyl]-, lithium salt
(1:3) (CA INDEX NAME)●³ Li

IT 271249-92-4P 366737-87-7P

(preparation of Li salts as supporting electrolytes for Li secondary batteries by reacting
(fluoroalkylsulfonyl)phosphoramidic acids with basic Li compds.)

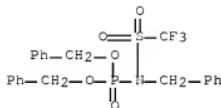
RN 271249-92-4 HCPLUS

CN Phosphoramidic acid, N-[(trifluoromethyl)sulfonyl]- (CA INDEX NAME)



RN 366797-87-7 HCPLUS

CN Phosphoramidic acid, N-(phenylmethyl)-N-[(trifluoromethyl)sulfonyl]-, bis(phenylmethyl) ester (CA INDEX NAME)



CC 29-7 (Organometallic and Organometalloidal Compounds)

Section cross-reference(s): 52

ST fluoroalkylsulfonylphosphoramidic acid lithium salt prepn
secondary battery supporting electrolyte

IT Secondary batteries

(lithium; preparation of Li salts as supporting
electrolytes for Li secondary batteries by
reacting (fluoroalkylsulfonyl)phosphoramidic acids with basic Li
compds.)

IT Battery electrolytes

(preparation of Li salts as supporting electrolytes for Li
secondary batteries by reacting
(fluoroalkylsulfonyl)phosphoramidic acids with basic Li compds.)

IT Electrolytes

(supporting; preparation of Li salts as supporting electrolytes
for Li secondary batteries by reacting
(fluoroalkylsulfonyl)phosphoramidic acids with basic Li compds.)

IT 1001025-42-9P

(preparation of Li salts as supporting electrolytes for Li
secondary batteries by reacting
(fluoroalkylsulfonyl)phosphoramidic acids with basic Li compds.)

IT 271249-92-4P 366797-81-1P 366797-87-7P

(preparation of Li salts as supporting electrolytes for Li
secondary batteries by reacting
(fluoroalkylsulfonyl)phosphoramidic acids with basic Li compds.)

IT 1310-65-2, Lithium hydroxide 15205-57-9,

Tribenzyolphosphite 36457-58-6

(preparation of Li salts as supporting electrolytes for Li
secondary batteries by reacting
(fluoroalkylsulfonyl)phosphoramidic acids with basic Li compds.)

L45 ANSWER 6 OF 34 HCPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2007:1334246 HCPLUS Full-text

DOCUMENT NUMBER: 147:544588

TITLE: Nonaqueous electrolyte containing
phosphazene compound and lithium ion
secondary battery with high discharge
efficiency having the sameINVENTOR(S): Nakagawa, Hiroe; Katayama, Sadahiro; Nukuta,
Toshiyuki

PATENT ASSIGNEE(S): GS Yuasa Corp., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 16pp.

CODEN: JKXXAF

DOCUMENT TYPE:

Patent

LANGUAGE:

Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2007305551	A	20071122	JP 2006-135814	20060515
PRIORITY APPLN. INFO.:			JP 2006-135814	20060515

OTHER SOURCE(S): MARPAT 147:544588

ED Entered STN: 22 Nov 2007

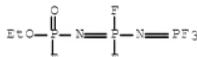
AB Disclosed is a nonaq. electrolyte made from an organic material consisting of a lithium salt, and a salt at molten state at room temperature containing a (cyclic) phosphazene compound and a quaternary ammonium organic cation.

IT 850650-07-6

(nonaq. electrolyte containing phosphazene compound for lithium ion secondary battery with high discharge efficiency)

RN 850650-07-6 HCPLUS

CN Phosphoranimidofluoridic acid, N-[difluoro[(trifluorophosphoranylidene)aminophosphoranylidene]-, ethyl ester (CA INDEX NAME)



CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST nonaq electrolyte cyclic phosphazene compd lithium ion secondary battery; quaternary ammonium org cation

IT Secondary batteries

(lithium; nonaq. electrolyte containing phosphazene compound for lithium ion secondary battery with high discharge efficiency)

IT Battery electrolytes

(nonaq. electrolyte containing phosphazene compound for lithium ion secondary battery with high discharge efficiency)

IT Quaternary ammonium compounds, uses

(nonaq. electrolyte containing phosphazene compound for lithium ion secondary battery with high discharge efficiency)

IT 33027-66-6 90076-65-6, LiTFSI 132843-44-8, Lithium bis(perfluoroethanesulfonyl)imide 143314-16-3, 1-Ethyl-3-methylimidazolium tetrafluoroborate 174501-64-5, 1-Butyl-3-methylimidazolium hexafluorophosphate 174501-65-6, 1-n-Butyl-3-methylimidazolium tetrafluoroborate 850650-07-6 (nonaq. electrolyte containing phosphazene compound for lithium ion secondary battery with high discharge efficiency)

L45 ANSWER 7 OF 34 HCPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2007:872939 HCPLUS Full-text

DOCUMENT NUMBER: 147:238824

TITLE: Electrolyte solutions using
 phosphazene-type ionic liquids, semiconductor
 electrodes, and dye-sensitized solar cells
 INVENTOR(S): Otsuki, Masatomo; Kanno, Hiroshi
 PATENT ASSIGNEE(S): Bridgestone Corp., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 26pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2007200833	A	20070809	JP 2006-138060	20060517
PRIORITY APPLN. INFO.:			JP 2005-372268	A 20051226

OTHER SOURCE(S): MARPAT 147:238824

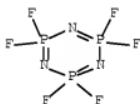
ED Entered STN: 10 Aug 2007

AB The title electrolyte solution contains a redox electrolyte and an ionic liquid consisting of a cation containing P and N. The title electrode is equipped with an oxide semiconductor layer formed on a conductive substrate, and an organic dye absorbed in the semiconductor layer containing the ionic liquid. The title solar cell, equipped with the electrolyte solution and the electrode, provides excellent fireproofing property.

IT 15599-91-4
 (reaction of, with triethylamine; in preparation of phosphazene-type ionic liqs. for dye-sensitized solar cells)

RN 15599-91-4 HCAPLUS

CN 1,3,5,2,4,6-Triazatrichosphorine, 2,2,4,4,6,6-hexafluoro-2,2,4,4,6,6-hexahydro- (CA INDEX NAME)



CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 ST electrolyte soln phosphazene ionic liq dye sensitized solar
 cell; oxide semiconductor electrode ionic liq dye sensitized
 solar cell; safety electrolyte soln phosphazene ionic liq
 solar cell fireproofing

IT Solar cells
 (dye-sensitized; electrolyte solns. using
 phosphazene-type ionic liqs. and semiconductor electrodes
 for dye-sensitized solar cells)

IT Electrolytes
 Fireproofing
 Ionic liquids
 Photoelectric cell electrodes

Safety
 (electrolyte solns. using phosphazene-type ionic liqs.
 and semiconductor electrodes for dye-sensitized solar

cells)

IT Cyclophosphazenes
(electrolyte solns. using phosphazene-type ionic liqs. and semiconductor electrodes for dye-sensitized solar cells)

IT 141460-19-7
(dye; electrolyte solns. using phosphazene-type ionic liqs. and semiconductor electrodes for dye-sensitized solar cells)

IT 13463-67-7, Titania, uses
(electrolyte solns. using phosphazene-type ionic liqs. and semiconductor electrodes for dye-sensitized solar cells)

IT 7553-56-2, Iodine, uses 7681-11-0, Potassium iodide, uses
(electrolyte; electrolyte solns. using phosphazene-type ionic liqs. and semiconductor electrodes for dye-sensitized solar cells)

IT 943451-55-6P 943451-58-9P 943451-59-0P 943451-60-3P
945484-42-4P 945484-43-5P
(preparation of; electrolyte solns. using phosphazene-type ionic liqs. and semiconductor electrodes for dye-sensitized solar cells)

IT 62-53-3, Aniline, reactions 110-86-1, Pyridine, reactions 121-44-8, Triethylamine, reactions 121-69-7, Dimethylaniline, reactions 872-50-4, reactions 14104-20-2, Silver tetrafluoroborate 33454-82-9, Lithium trifluoromethanesulfonate
(reaction of, with cyclophosphazene derivative; in preparation of phosphazene-type ionic liqs. for dye-sensitized solar cells)

IT 15599-91-4
(reaction of, with triethylamine; in preparation of phosphazene-type ionic liqs. for dye-sensitized solar cells)

L45 ANSWER 8 OF 34 HCPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2007:671044 HCPLUS Full-text
DOCUMENT NUMBER: 147:55504
TITLE: Electrolytic solutions containing inorganic acid amide derivatives and secondary lithium batteries using them
INVENTOR(S): Kawashima, Atsumichi
PATENT ASSIGNEE(S): Sony Corp., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 26pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2007157399	A	20070621	JP 2005-348295	20051201

PRIORITY APPLN. INFO.: MARPAT 147:55504

ED Entered STN: 21 Jun 2007

AB The title electrolytic solns. contain halogen-containing cyclic carbonic acid ester derivs. (high-dielec. solvent) and inorg. acid amide derivs. represented by AOp(NR1R2)(NR3R4)q(NR5R6)rXs (A = C, P, S; R1-6 = hydrocarbyl; X = halo; p = 1, 2; q, r = 0, 1, 2; s = 0, 1, 2). The electrolytic solns. have high chemical stability and the batteries show high charge/discharge efficiency.

IT 677-43-0

(electrolytic solns. containing halogen-containing cyclic carbonic acid ester derivs. and inorg. acid amide derivs. for Li batteries)

RN 677-43-0 HCAPLUS

CN Phosphoramicid dichloride, N,N-dimethyl- (CA INDEX NAME)



CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST electrolytic soln inorg acid amide lithium battery; inorg acid amide cyclic carbonic acid ester electrolytic soln

IT Electrolytic solutions

Secondary batteries

Solvents

(electrolytic solns. containing halogen-containing cyclic carbonic acid ester derivs. and inorg. acid amide derivs. for Li batteries)

IT 88-10-8 677-43-0 680-31-9, Hexamethylphosphoric acid triamide 1187-03-7, Tetraethylurea 1605-65-8, Bis(dimethylamino)phosphoryl chloride 2832-49-7, Tetraethylsulfamide 13360-57-1

(electrolytic solns. containing halogen-containing cyclic carbonic acid ester derivs. and inorg. acid amide derivs. for Li batteries)

IT 3967-54-2, 4-Chloro-1,3-dioxolan-2-one 114435-02-8,

4-Fluoro-1,3-dioxolan-2-one

(solvent; electrolytic solns. containing halogen-containing cyclic carbonic acid ester derivs. and inorg. acid amide derivs. for Li batteries)

L45 ANSWER 9 OF 34 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2007508119 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 146:484536

TITLE: Electrolytic solutions containing phosphorus compounds and secondary lithium batteries using them

INVENTOR(S): Kubota, Tadahiko; Ihara, Masayuki

PATENT ASSIGNEE(S): Sony Corp., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 33pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

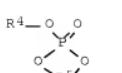
FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

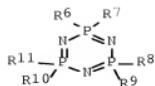
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2007115583	A	20070510	JP 2005-307228	20051021
PRIORITY APPLN. INFO.:			JP 2005-307228	20051021

OTHER SOURCE(S): MARPAT 146:484536

ED Entered STN: 10 May 2007



I



II

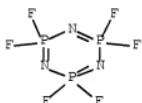
AB The electrolytic solns. contain halogenated ethylene carbonates, and ≥ 1 P compds. selected from R1OP(O)(OR2)OR3 [R1-R3 = C1-10 (un)substituted alkyl, (un)substituted alkenyl, (un)substituted alkynyl, (un)substituted aralkyl, (un)substituted aryl], phosphates I [R4 = C1-10 (un)substituted alkyl, (un)substituted alkenyl, (un)substituted alkynyl, (un)substituted aralkyl, (un)substituted aryl; R5 = C2-4 alkylene], and phosphazenes II [R6-R11 = C1-10 (un)substituted alkyl, (un)substituted alkenyl, (un)substituted alkynyl, (un)substituted aralkyl, (un)substituted aryl, (un)substituted alkoxy, (un)substituted phenoxy, halo], and optionally contain vinylene carbonate. The batteries show high capacity retention after continuous charging at high temperature

IT 15599-91-4

(electrolytic solns. containing phosphorus compds. for secondary lithium batteries with good high-temperature characteristics)

RN 15599-91-4 HCAPLUS

CN 1,3,5,2,4,6-Triazatriphosphorine, 2,2,4,4,6,6-hexafluoro-2,2,4,4,6,6-hexahydro- (CA INDEX NAME)



CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST lithium battery electrolyte phosphate

halogenated ethylene carbonate; phosphazene halogenated ethylene carbonate lithium battery electrolyte;
electrolytic soln cyclic phosphate halogenated ethylene carbonate

IT Phosphates, uses

(cyclic esters; electrolytic solns. containing phosphorus compds. for secondary lithium batteries with good high-temperature characteristics)

IT Battery electrolytes

(electrolytic solns. containing phosphorus compds. for secondary lithium batteries with good

high-temperature characteristics)

IT Secondary batteries
(lithium; electrolytic solns. containing phosphorus compds. for secondary lithium batteries with good high-temperature characteristics)

IT 78-40-0, Triethyl phosphate 115-86-6, Triphenyl phosphate 512-56-1, Trimethyl phosphate 867-17-4, Diethylmethyl phosphate 940-71-6 15599-91-4 33027-66-6 33027-67-7 33027-68-8 137584-16-8 471894-05-0 607744-75-2 935682-14-7 935682-15-8 (electrolytic solns. containing phosphorus compds. for secondary lithium batteries with good high-temperature characteristics)

IT 872-36-6, Vinylene carbonate 3967-54-2, 4-Chloro-1,3-dioxolan-2-one 114435-02-8, 4-Fluoro-1,3-dioxolan-2-one (electrolytic solns. containing phosphorus compds. for secondary lithium batteries with good high-temperature characteristics)

L45 ANSWER 10 OF 34 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2007:145522 HCAPLUS Full-text
DOCUMENT NUMBER: 146:232676
TITLE: Lithium secondary batteries suppressing electrolytes from decomposing at high temperature and their cathodes and cathode materials
INVENTOR(S): Ichihashi, Akira; Kano, Gentaro; Okawa, Takeshi
PATENT ASSIGNEE(S): Sony Corp., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 17pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2007035391	A	20070208	JP 2005-215427	20050726
PRIORITY APPLN. INFO.:			JP 2005-215427	20050726

OTHER SOURCE(S): MARPAT 146:232676
ED Entered STN: 09 Feb 2007
AB The battery cathodes contain materials coated with phosphazenes preferably represented by $X_3(X_1X_2P:N)_nX_4$ [$X_1-X_4 = F, Cl, Br, alkoxy, phenyl(oxy); n \geq 4$]. The cathodes may contain Li- and transition metal-containing active mass compds. Batteries containing the cathodes, anodes, and electrolytes inside film-type packages are also claimed. The batteries show less swelling on high-temperature uses.

IT 924658-28-6
(active-mass coatings; battery cathodes having phosphazene coatings on active masses and suppressing decomposition at high temperature)

RN 924658-28-6 HCAPLUS
CN Phosphoramidimidic difluoride, N'-(P,P-difluoro-N-phenylphosphinimyl)-N-[[[[(difluorophenylphosphoranylidene)amino]difluorophosphoranylidene]amino]difluorophosphoranylidene]- (CA INDEX NAME)



CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST lithium secondary battery cathode
phosphazene coating; polydifluorophosphazene battery
cathode coating high temp swelling prevention

IT Battery electrolytes
(battery cathodes having phosphazene coatings
on active masses and suppressing decomposition at high temperature)

IT Polyphosphazenes
(chlorine-containing, active-mass coatings; battery
cathodes having phosphazene coatings on active masses and
suppressing decomposition at high temperature)

IT Polyphosphazenes
(fluorine-containing, active-mass coatings; battery
cathodes having phosphazene coatings on active masses and
suppressing decomposition at high temperature)

IT Fluoropolymers, uses
(gels, electrolytes; battery cathodes
having phosphazene coatings on active masses and suppressing
decomposition at high temperature)

IT Secondary batteries
(lithium; battery cathodes having
phosphazene coatings on active masses and suppressing decomposition at
high temperature)

IT Fluoropolymers, uses
(polyphosphazene-, active-mass coatings; battery
cathodes having phosphazene coatings on active masses and
suppressing decomposition at high temperature)

IT 924658-15-1 924658-17-3 924658-19-5 924658-21-9 924658-23-1
924658-25-3 924658-27-5 924658-28-6
(active-mass coatings; battery cathodes having
phosphazene coatings on active masses and suppressing decomposition at
high temperature)

IT 7782-42-5, Graphite, uses
(anodes; battery cathodes having
phosphazene coatings on active masses and suppressing decomposition at
high temperature)

IT 12190-79-3, Lithium cobaltate (LiCoO₂)
(cathode active mass; battery cathodes
having phosphazene coatings on active masses and suppressing
decomposition at high temperature)

IT 21324-40-3, Lithium hexafluorophosphate
(electrolytes, infiltrated in polymer gels;
battery cathodes having phosphazene coatings on
active masses and suppressing decomposition at high temperature)

IT 9011-17-0, Hexafluoropropylene-vinylidene fluoride copolymer
(gels, electrolytes; battery cathodes
having phosphazene coatings on active masses and suppressing
decomposition at high temperature)

TITLE: Novel redox shuttles for overcharge protection of lithium batteries
 INVENTOR(S): Amine, Khalil; Chen, Zonghai; Wang, Qingzheng
 PATENT ASSIGNEE(S): The University of Chicago, USA
 SOURCE: U.S. Pat. Appl. Publ., 18pp.
 CODEN: USXKCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20060199080	A1	20060907	US 2006-366891	20060301
WO 2006094069	A2	20060908	WO 2006-US7297	20060301
WO 2006094069	A3	20070607		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BE, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AP, EA, EP, OA				
GB 2437902	A	20071107	GB 2007-17003	20060301
KR 2008012832	A	20080212	KR 2007-722140	20070928
CN 101160684	A	20080409	CN 2006-80012112	20071012
PRIORITY APPLN. INFO.:			US 2005-657850P	P 20050302
			WO 2006-US7297	W 20060301

OTHER SOURCE(S): MARPAT 145:317962

ED Entered STN: 08 Sep 2006

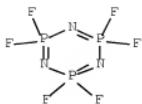
AB The present invention is generally related to electrolytes containing novel redox shuttles for overcharge protection of lithium-ion batteries. The redox shuttles are capable of thousands of hours of overcharge tolerance and have a redox potential at about 3-5.5 V vs.Li and particularly about 4.4-4.8 V vs.Li and particularly about 4.4-4.8 V vs.Li. Accordingly, in one aspect the invention provides electrolytes comprising an alkali metal salt; a polar aprotic solvent; and a redox shuttle additive that is an aromatic compound having at least one aromatic ring with four or more electroneg. substituents, two or more oxygen atoms bonded to the aromatic ring, and no hydrogen atoms bonded to the aromatic ring; and wherein the electrolyte solution is substantially nonaq. Further there are provided electrochem. devices employing the electrolyte and methods of making the electrolyte.

IT 15599-91-4D, aryloxy derivs.

(redox shuttles for overcharge protection of lithium batteries)

RN 15599-91-4 HCPLUS

CN 1,3,5,2,4,6-Triazatrichphosphorine, 2,2,4,4,6,6-hexafluoro-2,2,4,4,6,6-hexahydro- (CA INDEX NAME)



INCL 429326000; 429327000; 429328000; 429329000; 429212000; 429246000
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 ST lithium battery overcharge protection redox shuttle
 IT Cyclophosphazenes
 (aryloxy derivative; redox shuttles for overcharge protection of lithium batteries)
 IT Secondary batteries
 (lithium; redox shuttles for overcharge protection of lithium batteries)
 IT Battery electrolytes
 (redox shuttles for overcharge protection of lithium batteries)
 IT Alkali metal salts
 (redox shuttles for overcharge protection of lithium batteries)
 IT Aromatic compounds
 (redox shuttles for overcharge protection of lithium batteries)
 IT 60-29-7, Diethyl ether, uses 79-20-9, Methyl acetate 96-48-0,
 γ -Butyrolactone 96-49-1, Ethylene carbonate 105-58-8,
 Diethyl carbonate 108-32-7, Propylene carbonate 109-60-4, Propyl acetate 126-33-0, Sulfolane 141-78-6, Ethyl acetate, uses 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate 7439-93-20, Lithium, salt 7791-03-9 14283-07-9, Lithium tetrafluoroborate 21324-40-3, Lithium hexafluorophosphate 29935-35-1, Lithium hexafluoroarsenate 33454-82-9, Lithium triflate 90076-65-6 132404-42-3 132843-44-8 193214-24-3, Aluminum cobalt lithium nickel oxide (Al_{0.05}Co_{0.15}LiNi_{0.80}) 244761-29-3 409071-16-5 678966-16-0
 (redox shuttles for overcharge protection of lithium batteries)
 IT 78-19-3, 3,9-Divinyl-2,4,8,10-tetraoxaspiro[5.5]undecane 84-15-1, o-Terphenyl 84-15-1D, o-Terphenyl, aryloxy derivative 86-74-8D, Carbazole, aryloxy derivative 86-74-8D, Carbazole, aryloxy trivinylphosphate derivs. 88-12-0, 1-Vinylpyrrolidin-2-one, uses 88-14-2D, 2-Furoic acid, aryloxy derivative 91-19-0, Quinoxaline 91-20-3, Naphthalene, uses 91-22-5, Quinoline, uses 91-22-5D, Quinoline, alkoxy derivative 92-52-4, Biphenyl, uses 92-52-4D, Biphenyl, methoxy vinyl derivs. 96-49-1D, Ethylene carbonate, diaryloxy derivative 96-54-8, n-Methylpyrrole 101-84-8 101-84-8D, Diphenyl ether, diaryloxy derivative 102-09-0, Diphenyl carbonate 102-09-0D, Phenyl carbonate, aryloxy derivative 102-09-0D, Phenyl carbonate, diaryloxy derivative 102-71-6, Triethanolamine, uses 103-29-7, 1,2-Diphenylethane 106-92-3, Allylglycidyl ether 106-99-0, Butadiene, uses 108-32-7D, Propylene carbonate, diaryloxy derivative 109-93-3, Divinyl ether 109-97-7D, Pyrrole, alkoxy derivative 109-97-7D, Pyrrole, aryloxy derivative 109-99-9D, Thf, aryloxy derivative

110-00-9D, Furan, diaryloxy derivative 110-86-1, Pyridine, uses 110-89-4, Piperidine, uses 110-89-4D, Piperidine, aryloxy derivative 111-34-2, Butyl vinyl ether 119-65-3, Isoquinoline 120-72-9, Indole, uses 120-92-3D, Cyclopentanone, aryloxy derivative 140-67-0, 4-Allylanisole 142-96-1D, Butyl ether, aryloxy derivative 176-53-4D, Ethylene silicate, aryloxy derivative 176-53-4D, Ethylene silicate, diaryloxy derivative 287-23-0D, Cyclobutane, aryloxy derivative 288-32-4, Imidazole, uses 288-32-4D, Imidazole, aryloxy derivative 289-80-5, Pyridazine 289-80-5D, Pyridazine, aryloxy derivative 289-95-2, Pyrimidine 290-37-9, Pyrazine 290-37-9D, Pyrazine, aryloxy derivative 291-37-2D, Cyclotriphosphazene, diaryloxy derivative 503-30-0D, Oxetane, aryloxy derivative 614-99-3D, Ethyl-2-furoate, aryloxy derivative 930-22-3 1072-53-3D, Ethylene sulfate, aryloxy derivative 1072-53-3D, Ethylene sulfate, diaryloxy derivative 1118-58-7 1337-81-1, Vinyl Pyridine 1917-10-8, Vinyl 2-furoate 3724-65-0D, Crotonic acid, aryloxy derivative 3741-38-6D, Ethylene sulfite, aryloxy derivative 3741-38-6D, Ethylene sulfite, diaryloxy derivative 4177-16-6, VinylPyrazine 4245-37-8, Vinyl methacrylate 4370-23-4, 1-Vinylpiperidin-2-one 4427-96-7, Vinyl ethylene carbonate 5009-27-8D, Cyclopropanone, 2-aryl derivative 5009-27-8D, Cyclopropanone, 2-aryloxy derivative 5009-27-8D, Cyclopropanone, aryloxy derivative 6622-92-0, 2,4-Dimethyl-6-hydroxy-pyrimidine 7486-94-4 7570-02-7, Divinyl carbonate 10411-26-4D, Butyl carbonate, diaryloxy derivative 11099-06-2D, Ethyl silicate, diaryloxy derivative 12789-45-6, Methyl phosphate 12789-45-6D, Methyl phosphate, diaryloxy derivative 14265-44-2D, Phosphate, aryloxy derivative 14861-06-4, Vinyl crotonate 15599-91-4D, aryloxy derivs. 15896-04-5 16410-02-9 18358-13-9D, Methacrylate, aryloxy derivative 21994-23-0 23462-75-1, Dihydropyran-3-one 29383-23-1, Vinyl Imidazole 30676-86-9 30851-79-7 31094-36-7 32893-16-6, Methyl vinyl carbonate 33879-62-8, 2-Vinylloxetane 34721-16-9D, Furoate, 2-diaryloxy derivative 35143-18-1 36885-49-1, Vinyl phosphate 37203-76-2, Ethyl phosphate 37275-48-2D, Bipyridine, vinyl methoxy derivs. 41824-21-9D, Crotonate, diaryloxy derivative 44414-27-9 44866-76-4 50337-14-9, 3-Vinylcyclopentanone 51222-11-8 53627-36-4, β -Vinyl- γ -butyrolactone 55849-58-6 61548-40-1 65967-52-4 66166-61-8, 3-Vinylcyclobutanone 66281-01-4 66281-16-1 66956-76-1 72607-84-2 75454-86-3 77208-21-0 80345-98-8 99018-41-4 121712-01-4 139669-84-4 24729-51-2 363548-36-2 557084-91-0 856785-12-1 891828-02-7 891828-03-8 891828-04-9 891828-05-0 891828-06-1 897028-08-9 897028-09-0 897028-10-3 897028-11-4 897028-12-5 897028-13-6 897028-14-7 897028-15-8 897028-16-9 897028-17-0 897028-18-1 897028-19-2 897028-20-5 897028-21-6 897028-22-7 897028-24-9 897028-25-0 897028-26-1 897028-27-2 897028-28-3 897028-28-3D, diaryloxy derivative 897381-27-0 897381-28-1 897381-29-2 897381-31-6 897381-36-1 897381-38-3 897381-40-7 897381-41-8 897381-42-9 897381-43-0 897381-44-1 897381-45-2 897381-46-3 897381-47-4 908587-10-0 908587-13-3 908587-17-7 908587-21-3 908587-22-4 908599-70-2 908599-71-3 908599-72-4 908599-73-5 908599-74-6 908599-75-7 908599-76-8
(redox shuttles for overcharge protection of lithium batteries)

L45 ANSWER 12 OF 34 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2006:845445 HCAPLUS Full-text

DOCUMENT NUMBER: 145:252394

TITLE: Electrolyte solution and secondary lithium battery

INVENTOR(S): Ichihashi, Akira; Kano, Gentaro; Tsuda, Karin; Kimura, Fumiko

PATENT ASSIGNEE(S): Sony Corporation, Japan
 SOURCE: PCT Int. Appl., 45pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2006088002	A1	20060824	WO 2006-JP302490	20060214
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
KR 2007103041	A	20071022	KR 2007-718899	20070817
CN 101124695	A	20080213	CN 2006-80005446	20070820
PRIORITY APPLN. INFO.:			JP 2005-41894	A 20050218
			JP 2005-157100	A 20050530
			WO 2006-JP302490	W 20060214

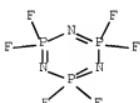
ED Entered STN: 24 Aug 2006

AB The electrolyte solution contains 4-fluoro-1,3-dioxolane-one and a compound having a proton-capturing function. The battery has a cathode, an anode, and the above electrolyte solution

IT 15599-91-4
 (electrolyte solns. containing 4-fluoro-1,3-dioxolane-one and proton capturing compds. for secondary lithium batteries)

RN 15599-91-4 HCAPLUS

CN 1,3,5,2,4,6-Triazatrifosphorine, 2,2,4,4,6,6-hexafluoro-2,2,4,4,6,6-hexahydro- (CA INDEX NAME)



CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 ST secondary lithium battery electrolyte
 dioxolane proton capturing compd

IT Battery electrolytes
 (electrolyte solns. containing 4-fluoro-1,3-dioxolane-one and

proton capturing compds. for secondary lithium batteries)

IT Secondary batteries
(lithium; electrolyte solns. containing
4-fluoro-1,3-dioxolane-one and proton capturing compds. for
secondary lithium batteries)

IT 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate
7782-42-5, Graphite, uses 12190-79-3, Cobalt lithium oxide
(CoLiO₂) 21324-40-3, Lithium hexafluorophosphate
(electrolyte solns. containing 4-fluoro-1,3-dioxolane-one and
proton capturing compds. for secondary lithium
batteries)

IT 100-97-0, Hexamethylenetetramine, uses 110-86-1, Pyridine, uses
283-74-9, Hexaethylenetetramine 290-37-9, Pyrazine 290-87-9,
1,3,5-Triazine 603-34-9, Triphenyl amine 940-71-6 1121-07-9
3013-92-1 5391-40-2 15599-91-4 19836-78-3 90076-65-6
114435-02-8 132843-44-8
(electrolyte solns. containing 4-fluoro-1,3-dioxolane-one and
proton capturing compds. for secondary lithium
batteries)

REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR
THIS RECORD. ALL CITATIONS AVAILABLE IN THE
RE FORMAT

L45 ANSWER 13 OF 34 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2006:511339 HCAPLUS Full-text
DOCUMENT NUMBER: 145:30866
TITLE: Nonflammable porous polyolefin films, separators
therefrom, and nonaqueous electrolyte
lithium batteries therewith
INVENTOR(S): Otsuki, Masashi
PATENT ASSIGNEE(S): Bridgestone Corp., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 15 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2006137789	A	20060601	JP 2004-326235	20041110
PRIORITY APPLN. INFO.:			JP 2004-326235	20041110

OTHER SOURCE(S): MARPAT 145:30866

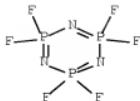
ED Entered STN: 01 Jun 2006

AB The polyolefin films comprise ultrahigh-d. polyolefins with thickness 0.5-75
μm, porosity 30-85%, permeability shutdown temperature <135°, and Mw $\geq 7 + 105$,
low-d. polyolefins, and P-containing fireproofing agents (e.g., phosphazenes,
phosphonates, or phosphinates). In the batteries (primary or secondary
batteries) equipped with separators from the films, overcurrent is safely
prevented by their shutdown function and nonflammability.

IT 15599-91-4D, ethyleneglycoxy-containing
(fireproofing agents; nonflammable porous polyolefin films for
nonaq. electrolyte lithium battery
separators)

RN 15599-91-4 HCAPLUS

CN 1,3,5,2,4,6-Triazatriphosphorine, 2,2,4,4,6,6-hexafluoro-2,2,4,4,6,6-
hexahydro- (CA INDEX NAME)



CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 38
 ST battery separator safety nonflammable porous polyolefin;
 nonaq electrolyte lithium battery
 separator porous polyethylene film; phosphazene phosphonate
 phosphinate fireproofing agent battery separator
 IT Primary batteries
 (lithium; nonflammable porous polyolefin films for nonaq.
 electrolyte lithium battery separators)
 IT Fireproofing agents
 Primary battery separators
 Safety
 (nonflammable porous polyolefin films for nonaq.
 electrolyte lithium battery separators)
 IT Polyolefins
 (porous films; nonflammable porous polyolefin films for nonaq.
 electrolyte lithium battery separators)
 IT 358-74-7, Diethyl fluorophosphate 460-52-6, Ethyl difluorophosphate
 940-71-6 1184-10-7 15599-51-4D, ethyleneglycoxy-containing
 (fireproofing agents; nonflammable porous polyolefin films for
 nonaq. electrolyte lithium battery
 separators)
 IT 9002-88-4, Polyethylene
 (porous films; nonflammable porous polyolefin films for nonaq.
 electrolyte lithium battery separators)

L45 ANSWER 14 OF 34 HCAPLUS COPYRIGHT 2008 ACS on STN
 ACCESSION NUMBER: 2006:343424 HCAPLUS Full-text
 DOCUMENT NUMBER: 144:394653
 TITLE: Nonaqueous electrolyte solution, and
 secondary nonaqueous electrolyte
 battery having the solution
 INVENTOR(S): Horikawa, Yasuo; Otsuki, Masashi; Eguchi,
 Shinichi; Kanno, Hiroshi
 PATENT ASSIGNEE(S): Bridgestone Corporation, Japan
 SOURCE: PCT Int. Appl., 29 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2006038614	A1	20060413	WO 2005-JP18347	20051004
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KM, KP,				

KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN,
 MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU,
 SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA,
 UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU,
 IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR,
 BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD,
 TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
 ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

JP 2006107910 A 20060420 JP 2004-292479 20041005

JP 2006286571 A 20061019 JP 2005-108711 20050405

EP 1798792 A1 20070620 EP 2005-790529 20051004

R: DE, FR

CN 101057355 A 20071017 CN 2005-80039032 20051004

US 20080153005 A1 20080626 US 2007-576183 20070328

PRIORITY APPLN. INFO.: JP 2004-292479 A 20041005

JP 2005-108711 A 20050405

WO 2005-JP18347 W 20051004

ED Entered STN: 14 Apr 2006

AB Disclosed is a nonaq. electrolyte solution which exhibits incombustibility even in high oxygen concentration environments. The electrolyte solution comprises an electrolyte salt and a nonaq. solvent, containing a cyclic phosphazene compound: (NPR12)n (R1s = halo or monovalent substituent; and n = 3-4) and a fluorophosphate compound: PFR22=O (R2s = halo, alkoxy, or aryloxy group, and ≥1 of the two R2s = alkoxy or aryloxy group). The battery has the above electrolyte solution, a cathode, and an anode.

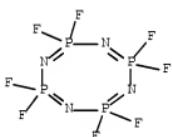
IT 14700-00-6

(electrolyte solns. containing cyclic phosphazene compds. and fluorophosphate compds. for secondary batteries)

RN 14700-00-6 HCAPLUS

CN 2λ5,4λ5,6λ5,8λ5-1,3,5,7,2,4,6,8-

Tetrazatetrephosphocine, 2,2,4,4,6,6,8,8-octafluoro- (CA INDEX NAME)



CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST secondary battery electrolyte solvent cyclic phosphazene compd fluorophosphate compd

IT Battery electrolytes

Secondary batteries

(electrolyte solns. containing cyclic phosphazene compds. and fluorophosphate compds. for secondary batteries)

IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 616-38-6,

Dimethyl carbonate 872-36-6, Vinylene carbonate 7782-42-5,

Graphite, uses 12190-79-3, Cobalt lithium oxide (ColiO2)

(electrolyte solns. containing cyclic phosphazene compds. and

fluorophosphate compds. for secondary batteries)
 IT 398-62-9, 4-Fluoroveratrole 459-60-9 460-52-6 1126-52-9
 5954-50-7 14700-00-6 22382-13-4 26078-16-0 26471-90-9
 33027-66-6 33027-67-7 33027-68-8 55593-38-9 70765-59-2
 324547-55-9 60774-75-2 882692-99-1
 (electrolyte solns. containing cyclic phosphazene compds. and
 fluorophosphate compds. for secondary batteries)

REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE
 RE FORMAT

L45 ANSWER 15 OF 34 HCAPLUS COPYRIGHT 2008 ACS on STN
 ACCESSION NUMBER: 2005:1283421 HCAPLUS Full-text
 DOCUMENT NUMBER: 144:38308
 TITLE: Flame-inhibiting additives for nonaqueous
 electrolytes of batteries, and
 nonaqueous-electrolyte batteries
 INVENTOR(S): Otsuki, Masatomo; Eguchi, Shinichi
 PATENT ASSIGNEE(S): Bridgestone Corp., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 16 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005340161	A	20051208	JP 2004-353906	20041207
PRIORITY APPLN. INFO.:			JP 2004-130800	A 20040427

OTHER SOURCE(S): MARPAT 144:38308

ED Entered STN: 08 Dec 2005

AB The nong. electrolytes of batteries contain compound additives releasing phosphine oxides bearing P-F bonds and/or P-NH₂ bonds as flame-inhibiting substances upon combustion. The compound additives may be phosphazenes. The flame-inhibiting substances may be fire extinguishers, flame-retardant agents, and/or nonflammable substances. Also claimed are the nonaq. electrolytes and batteries employing the electrolytes.

IT 15391-51-2, Phosphoramicidic difluoride
 (fireproofing agent; nonaq.-electrolyte battery
 containing flame-inhibiting (phosphazene) additive releasing
 fireproofing agent)

RN 15391-51-2 HCAPLUS

CN Phosphoramicidic difluoride (8CI, 9CI) (CA INDEX NAME)



IC ICM H01M010-40
 ICS H01M006-16

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST lithium battery electrolyte fireproofing
 agent phosphazene; nonaq electrolyte battery

additive fireproofing agent phosphazene; phosphine oxide fire retardant release lithium battery electrolyte
IT Primary batteries
Secondary batteries
(lithium; nonaq.-electrolyte battery containing flame-inhibiting (phosphazene) additive releasing fireproofing agent)
IT Battery electrolytes
Fire extinguishers
Fireproofing agents
(nonaq.-electrolyte battery containing flame-inhibiting (phosphazene) additive releasing fireproofing agent)
IT Phosphazenes
(releasing phosphine oxides upon combustion; in nonaq.-electrolyte battery containing flame-inhibiting (phosphazene) additive releasing fireproofing agent)
IT 96-49-1, Ethylene carbonate 623-53-0, Ethyl methyl carbonate (electrolyte solvent; in nonaq.-electrolyte battery containing flame-inhibiting (phosphazene) additive releasing fireproofing agent)
IT 5954-50-7P 15391-51-2P, Phosphoramidic difluoride 22382-13-4P
(fireproofing agent; nonaq.-electrolyte battery containing flame-inhibiting (phosphazene) additive releasing fireproofing agent)
IT 870894-67-0 870894-68-1 871030-17-0
(releasing phosphine oxides upon combustion; in nonaq.-electrolyte battery containing flame-inhibiting (phosphazene) additive releasing fireproofing agent)

L45 ANSWER 16 OF 34 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2005:1170694 HCAPLUS Full-text
DOCUMENT NUMBER: 143:443493
TITLE: Nonaqueous electrolyte solution for
battery and the battery using
the solution
INVENTOR(S): Horikawa, Yasuo; Eguchi, Shinichi; Ohtsuki,
Masashi
PATENT ASSIGNEE(S): Bridgestone Corporation, Japan
SOURCE: PCT Int. Appl., 16 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005104289	A1	20051103	WO 2005-JP5920	20050329
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
RW:	BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ,			

DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC,
 NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA,
 GN, GQ, GW, ML, MR, NE, SN, TD, TG
 EP 1739784 A1 20070103 EP 2005-727866 20050329
 R: DE, FR
 CN 1943070 A 20070404 CN 2005-80011705 20050329
 US 20070202417 A1 20070830 US 2006-578602 20061016
 PRIORITY APPLN. INFO.: JP 2004-122959 A 20040419
 JP 2004-292668 A 20041005
 WO 2005-JP5920 W 20050329

ED Entered STN: 03 Nov 2005

AB The electrolyte solution contains a phosphine oxide compound having a P-F bond and/or a P-NH₂ bond in a mol. and an electrolyte salt. The battery has the above electrolyte solution, a cathode, and an anode .

IT 15391-51-2, Phosphoramicid difluoride
 (nonaq. electrolyte solns. containing phosphine oxide compound
 for primary or secondary batteries)

RN 15391-51-2 HCPLUS

CN Phosphoramicid difluoride (8CI, 9CI) (CA INDEX NAME)



IC ICM H01M010-40

ICS H01M006-16

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 ST battery nonaq electrolyte soln phosphine oxide
 compd safety

IT Battery electrolytes

Primary batteries

Secondary batteries

(nonaq. electrolyte solns. containing phosphine oxide compound
 for primary or secondary batteries)

IT 96-49-1, Ethylene carbonate 623-53-0, Ethyl methyl carbonate
 7782-42-5, Graphite, uses 12190-79-3, Cobalt lithium oxide

(CoLiO₂) 21324-40-3, Lithium hexafluorophosphate

(nonaq. electrolyte solns. containing phosphine oxide compound
 for primary or secondary batteries)

IT 14700-14-2, Phosphorodiamidic fluoride 15391-51-2,

Phosphoramicid difluoride 22382-13-4

(nonaq. electrolyte solns. containing phosphine oxide compound
 for primary or secondary batteries)

REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE
 RE FORMAT

L45 ANSWER 17 OF 34 HCPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2005:611359 HCPLUS Full-text

DOCUMENT NUMBER: 143:136272

TITLE: Nonaqueous electrolytic solution for
 battery with improved safety

INVENTOR(S): Otsuki, Masatomo; Ogino, Takao
 PATENT ASSIGNEE(S): Bridgestone Corp., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 19 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 2
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005190873	A	20050714	JP 2003-432139	20031226
WO 2005064734	A1	20050714	WO 2004-JP19218	20041222
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GO, GW, ML, MR, NE, SN, TD, TG				
EP 1699105	A1	20060906	EP 2004-807575	20041222
R: DE, FR				
CN 1906796	A	20070131	CN 2004-80040997	20041222
US 20070172740	A1	20070726	US 2006-583412	20060620
PRIORITY APPLN. INFO.:			JP 2003-432031	A 20031226
			JP 2003-432139	A 20031226
			WO 2004-JP19218	W 20041222

OTHER SOURCE(S): MARPAT 143:136272

ED Entered STN: 15 Jul 2005

AB The solution contains aprotic organic solvents and supporting salts, wherein each solvent contains a P- and/or N-containing compound (e.g., phosphazene compound) satisfying $|T - t| \leq 25^\circ$ (T and t are b.p. of the solvent and the compound, resp.). The battery using the solution is also claimed. The P- and/or N-containing compound prevents the organic solvents from ignition.

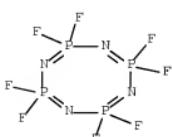
IT 14700-00-6 15599-91-4

(electrolyte containing aprotic organic solvents, P- and/or N-containing compds., and salts for polymer battery with improved safety)

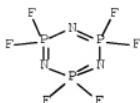
RN 14700-00-6 HCPLUS

CN 215, 415, 615, 815-1, 3, 5, 7, 2, 4, 6, 8-

Tetrazatetrephosphocine, 2, 2, 4, 4, 6, 6, 8, 8-octafluoro- (CA INDEX NAME)



RN 15599-91-4 HCAPLUS
 CN 1,3,5,2,4,6-Triazatrichosphorine, 2,2,4,4,6,6-hexafluoro-2,2,4,4,6,6-hexahydro- (CA INDEX NAME)

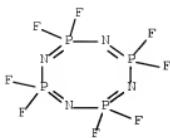


IC ICM H01M010-40
 ICS H01M006-16
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 ST phosphorus nitrogen compd fire prevention nonaq battery;
 aprotic org solvent electrolyte phosphazene battery
 safety
 IT Solvents
 (aprotic; electrolyte containing aprotic organic solvents, P-
 and/or N-containing compds., and salts for polymer battery
 with improved safety)
 IT Battery electrolytes
 Fireproofing agents
 (electrolyte containing aprotic organic solvents, P- and/or
 N-containing compds., and salts for polymer battery with
 improved safety)
 IT Cyclophosphazenes
 (electrolyte containing aprotic organic solvents, P- and/or
 N-containing compds., and salts for polymer battery with
 improved safety)
 IT Secondary batteries
 (lithium; electrolyte containing aprotic organic
 solvents, P- and/or N-containing compds., and salts for polymer
 battery with improved safety)
 IT 14700-00-6 15599-91-4 33027-66-6 33027-68-8
 55593-37-8 55593-38-9 55593-39-0
 (electrolyte containing aprotic organic solvents, P- and/or
 N-containing compds., and salts for polymer battery with
 improved safety)
 IT 14283-07-9, Lithium tetrafluoroborate 21324-40-3,
 Lithium hexafluorophosphate
 (electrolyte; electrolyte containing aprotic organic
 solvents, P- and/or N-containing compds., and salts for polymer
 battery with improved safety)
 IT 96-48-0, γ -Butyrolactone 96-49-1, Ethylene carbonate
 105-58-8, Diethyl carbonate 107-31-3, Methyl formate 108-32-7,
 Propylene carbonate 110-71-4, 1,2-Dimethoxyethane 616-38-6,
 Dimethyl carbonate 623-53-0, Ethyl methyl carbonate
 (solvent; electrolyte containing aprotic organic solvents, P-
 and/or N-containing compds., and salts for polymer battery
 with improved safety)

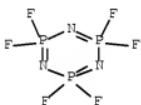
L45 ANSWER 18 OF 34 HCAPLUS COPYRIGHT 2008 ACS on STN
 ACCESSION NUMBER: 2005:609202 HCAPLUS Full-text
 DOCUMENT NUMBER: 143:136266
 TITLE: Electrolyte for polymer battery
 with improved safety
 INVENTOR(S): Otsuki, Masami; Ogino, Takao
 PATENT ASSIGNEE(S): Bridgestone Corp., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 18 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 2
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005190869	A	20050714	JP 2003-432031	20031226
WO 2005064734	A1	20050714	WO 2004-JP19218	20041222
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, RU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
EP 1699105	A1	20060906	EP 2004-807575	20041222
R: DE, FR				
CN 1906796	A	20070131	CN 2004-80040997	20041222
US 20070172740	A1	20070726	US 2006-583412	20060620
PRIORITY APPLN. INFO.:			JP 2003-432031	A 20031226
			JP 2003-432139	A 20031226
			WO 2004-JP19218	W 20041222

ED Entered STN: 14 Jul 2005
 AB The electrolyte contains aprotic organic solvents, polymers, and supporting salts, wherein each solvent contains a P- and/or N-containing compound satisfying $|T - t| \leq 25^\circ$ (T and t are b.p. of the solvent and the compound, resp.). The battery using the electrolyte is also claimed. The P- and/or N-containing compound prevents the organic solvents from ignition.
 IT 14700-00-6 15599-91-4
 (electrolyte containing aprotic organic solvents and P- and/or N-containing compds. for polymer battery with improved safety)
 RN 14700-00-6 HCAPLUS
 CN 2λ5, 4λ5, 6λ5, 8λ5-1, 3, 5, 7, 2, 4, 6, 8-
 Tetrazatetrephosphocine, 2, 2, 4, 4, 6, 6, 8, 8-octafluoro- (CA INDEX NAME)



RN 15599-91-4 HCAPLUS
 CN 1,3,5,2,4,6-Triazatrichosphorine, 2,2,4,4,6,6-hexafluoro-2,2,4,4,6,6-hexahydro- (CA INDEX NAME)



IC ICM H01M010-40
 ICS H01B001-06; H01M006-18
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 38
 ST phosphorus nitrogen compd fire prevention polymer battery;
 aprotic org solvent electrolyte polymer battery
 safety
 IT Solvents
 (aprotic; electrolyte containing aprotic organic solvents and P-
 and/or N-containing compds. for polymer battery with improved
 safety)
 IT Battery electrolytes
 Fireproofing agents
 Polymer electrolytes
 (electrolyte containing aprotic organic solvents and P- and/or
 N-containing compds. for polymer battery with improved
 safety)
 IT Polyoxalkylenes, uses
 (electrolyte containing aprotic organic solvents and P- and/or
 N-containing compds. for polymer battery with improved
 safety)
 IT Cyclophosphazenes
 (electrolyte containing aprotic organic solvents and P- and/or
 N-containing compds. for polymer battery with improved
 safety)
 IT Secondary batteries
 (lithium; electrolyte containing aprotic organic
 solvents and P- and/or N-containing compds. for polymer battery
 with improved safety)
 IT 14700-00-6 15599-91-4 33027-66-6 55593-37-8
 55593-39-0
 (electrolyte containing aprotic organic solvents and P- and/or
 N-containing compds. for polymer battery with improved

safety)
 IT 7439-93-2D, Lithium, poly(ethylene oxide) complexes
 25322-68-3D, Poly(ethylene oxide), lithium complex
 (electrolyte; electrolyte containing aprotic organic
 solvents and P- and/or N-containing compds. for polymer battery
 with improved safety)
 IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 107-31-3,
 Methyl formate 108-32-7, Propylene carbonate 616-38-6, Dimethyl
 carbonate 623-53-0, Ethyl methyl carbonate
 (solvent; electrolyte containing aprotic organic solvents and P-
 and/or N-containing compds. for polymer battery with improved
 safety)

L45 ANSWER 19 OF 34 HCAPLUS COPYRIGHT 2008 ACS on STN
 ACCESSION NUMBER: 2005:368511 HCAPLUS Full-text
 DOCUMENT NUMBER: 142:433056
 TITLE: Secondary nonaqueous electrolyte
 battery
 INVENTOR(S): Koto, Tomoko
 PATENT ASSIGNEE(S): Japan Storage Battery Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 13 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2005116306	A	20050428	JP 2003-348133	20031007
PRIORITY APPLN. INFO.:			JP 2003-348133	20031007

ED Entered STN: 29 Apr 2005
 AB The battery has a cathode, containing a Li-Ni-Mn composite oxide : $LixNi_yMn_{2-y}O_{4-\delta}$ ($0 < x < 1.1$; $0.45 < y < 0.55$; and $0 \leq \delta < 0.4$) as a cathode active mass, an anode, and a nonaq. electrolyte solution; where the electrolyte solution contains 0.1-20 mass% phosphazene derivative
 IT 850650-07-6
 (cathodes containing lithium manganese nickel
 oxides and electrolytes containing phosphazene derivs. for
 secondary lithium batteries)
 RN 850650-07-6 HCAPLUS
 CN Phosphoramidofluoridic acid, N-[difluoro[(trifluorophosphoranylidene)amino]phosphoranylidene]-, ethyl ester (CA INDEX NAME)



IC ICM H01M010-40
 ICS H01M04-02; H01M04-58
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 ST secondary lithium battery cathode
 lithium manganese nickel oxide; battery

electrolyte phosphazene deriv
 IT Battery cathodes
 Battery electrolytes
 (cathodes containing lithium manganese nickel
 oxides and electrolytes containing phosphazene derivs. for
 secondary lithium batteries)
 IT Polyphosphazenes
 (cyclic; cathodes containing lithium manganese
 nickel oxides and electrolytes containing phosphazene derivs.
 for secondary lithium batteries)
 IT Secondary batteries
 (lithium; cathodes containing lithium
 manganese nickel oxides and electrolytes containing
 phosphazene derivs. for secondary lithium
 batteries)
 IT 96-48-0, γ -Butyrolactone 96-49-1, Ethylene carbonate
 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate
 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate
 7782-42-5, Graphite, uses 12031-75-3, Lithium manganese
 nickel oxide (LiMn_{1.5}Ni_{0.504}) 14283-07-9, Lithium
 tetrafluoroborate 21324-40-3, Lithium hexafluorophosphate
 (cathodes containing lithium manganese nickel
 oxides and electrolytes containing phosphazene derivs. for
 secondary lithium batteries)
 IT 850650-07-6
 (cathodes containing lithium manganese nickel
 oxides and electrolytes containing phosphazene derivs. for
 secondary lithium batteries)

L45 ANSWER 20 OF 34 HCAPLUS COPYRIGHT 2008 ACS on STN
 ACCESSION NUMBER: 2005:347339 HCAPLUS Full-text
 DOCUMENT NUMBER: 142:414502
 TITLE: Secondary nonaqueous electrolyte
 battery
 INVENTOR(S): Nishie, Katsushi
 PATENT ASSIGNEE(S): Japan Storage Battery Co., Ltd., Japan
 SOURCE: PCT Int. Appl., 36 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005036690	A1	20050421	WO 2004-JP15097	20041006
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GB, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
CN 1871740	A	20061129	CN 2004-80029496	20041006
US 20070072084	A1	20070329	US 2006-574952	20060407

PRIORITY APPLN. INFO.:

JP 2003-348134

A 20031007

WO 2004-JP15097

W 20041006

ED Entered STN: 22 Apr 2005

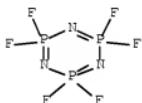
AB The battery has an anode which contains a Si-containing material, a cathode, and a nonaq. electrolyte solution; where the electrolyte solution contains a phosphazene derivative

IT 15599-91-4

(anode having Si containing material and electrolyte solns. having phosphazene derivs. for secondary batteries)

RN 15599-91-4 HCAPLUS

CN 1,3,5,2,4,6-Triazatrichosphorine, 2,2,4,4,6,6-hexafluoro-2,2,4,4,6,6-hexahydro- (CA INDEX NAME)



IC ICM H01M010-40

ICS H01M004-02; H01M004-38; H01M004-48; H01M004-58

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST secondary battery anode silicon contg material

electrolyte phosphazene deriv

IT Battery electrolytes

Secondary batteries

(anode having Si containing material and electrolyte solns. having phosphazene derivs. for secondary batteries)

IT 96-49-1, Ethylene carbonate 623-53-0, Ethyl methyl carbonate 7631-86-9D, Silicon oxide, nonstoichiometric 7782-42-5, Graphite, uses 21324-40-3, Lithium hexafluorophosphate 52627-24-4, Cobalt lithium oxide

(anode having Si containing material and electrolyte solns. having phosphazene derivs. for secondary batteries)

IT 562-88-9 940-71-6 1085-05-0 7440-21-3, Silicon, uses 15599-91-4 602299-82-1 607744-75-2 850424-61-2

850427-44-0 850427-45-1

(anode having Si containing material and electrolyte solns. having phosphazene derivs. for secondary batteries)

IT 7440-44-0, Carbon, uses

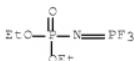
(mesophase micro beads; anode having Si containing material and electrolyte solns. having phosphazene derivs. for secondary batteries)

REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

ACCESSION NUMBER: 2004:589783 HCPLUS Full-text
 DOCUMENT NUMBER: 141:126373
 TITLE: Separator for nonaqueous electrolyte
 battery
 INVENTOR(S): Kanno, Hiroshi; Otsuki, Masashi; Eguchi, Shinichi
 PATENT ASSIGNEE(S): Bridgestone Corporation, Japan
 SOURCE: PCT Int. Appl., 32 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004062002	A1	20040722	WO 2003-JP16360	20031219
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2003289453	A1	20040729	AU 2003-289453	20031219
EP 1603175	A1	20051207	EP 2003-780936	20031219
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
CN 1732580	A	20060208	CN 2003-80107738	20031219
US 20060073381	A1	20060406	US 2005-540837	20050627
PRIORITY APPLN. INFO.:			JP 2002-380683	A 20021227
			WO 2003-JP16360	W 20031219

ED Entered STN: 23 Jul 2004
 AB The separator, which is incombustible even when the inside of a battery has a high temperature and useful for a primary or secondary Li battery, comprises a micro-porous film formed by adding a phosphazene derivative and/or an isomer of a phosphazene derivative to a polymer.
 IT 722454-84-4
 (separators containing phosphazene derivative added polymers for primary and secondary lithium batteries)
 RN 722454-84-4 HCPLUS
 CN Phosphoramic acid, (trifluorophosphoranylidene)-, diethyl ester (9CI) (CA INDEX NAME)



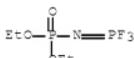
ICS H01M010-40
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 ST nonaq electrolyte battery incombustible separator
 phosphazene deriv added polymer
 IT Primary battery separators
 Secondary battery separators
 (separators containing phosphazene derivative added polymers for primary and secondary lithium batteries)
 IT 7439-93-2, Lithium, uses
 (anode; separators containing phosphazene derivative added polymers for primary and secondary lithium batteries)
 IT 1313-13-9, Manganese dioxide, uses 12190-79-3, Cobalt lithium oxide (CoLiO₂)
 (cathode; separators containing phosphazene derivative added polymers for primary and secondary lithium batteries)
 IT 96-48-0, γ -Butyrolactone 96-49-1, Ethylene carbonate
 105-58-8, Diethyl carbonate 957-13-1 1184-10-7 2397-48-0
 9002-88-4, Polyethylene 14283-07-9, Lithium tetrafluoroborate 33027-68-8 722454-84-4 722454-86-6
 724792-59-0
 (separators containing phosphazene derivative added polymers for primary and secondary lithium batteries)
 IT 724792-60-3
 (separators containing phosphazene derivative added polymers for primary and secondary nonaq. electrolyte batteries)

L45 ANSWER 22 OF 34 HCAPLUS COPYRIGHT 2008 ACS on STN
 ACCESSION NUMBER: 2004:570217 HCAPLUS Full-text
 DOCUMENT NUMBER: 141:126304
 TITLE: Additive for secondary battery nonaqueous electrolyte solution and the battery
 INVENTOR(S): Otsuki, Masashi; Horikawa, Yasuro
 PATENT ASSIGNEE(S): Bridgestone Corporation, Japan
 SOURCE: PCT Int. Appl., 33 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004059782	A1	20040715	WO 2003-JP16592	20031224
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GB, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2003292764	A1	20040722	AU 2003-292764	20031224
EP 1580832	A1	20050928	EP 2003-768180	20031224

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC,
 PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK
 CN 1732588 A 20060208 CN 2003-80107739 20031224
 US 20060046151 A1 20060302 US 2005-540558 20050624
 PRIORITY APPLN. INFO.: JP 2002-377142 A 20021226
 WO 2003-JP16592 W 20031224

ED Entered STN: 16 Jul 2004
 AB The additive comprises a phosphazene derivative represented by R13P = N-X (R1 = halo or monovalent substituent; and X = C, Si, N, P, O and/or S containing organic group). The battery has a nonaq. electrolyte solution comprising the above additive, a cathode, and an anode.
 IT 722454-84-4
 (additives containing phosphazene derivs. for secondary battery electrolytes)
 RN 722454-84-4 HCAPLUS
 CN Phosphoramidic acid, (trifluorophosphoranylidene)-, diethyl ester (9CI) (CA INDEX NAME)



IC ICM H01M010-40
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 ST secondary lithium battery nonaq
 electrolyte additive phosphazene deriv
 IT Battery electrolytes
 (additives containing phosphazene derivs. for secondary battery electrolytes)
 IT Secondary batteries
 (lithium; additives containing phosphazene derivs. for secondary battery electrolytes)
 IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 12190-79-3, Cobalt lithium oxide (CoLiO2) 21324-40-3,
 lithium hexafluorophosphate
 (additives containing phosphazene derivs. for secondary battery electrolytes)
 IT 2397-48-0 722454-84-4 722454-85-5 722454-86-6
 (additives containing phosphazene derivs. for secondary battery electrolytes)
 REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE
 RE FORMAT

L45 ANSWER 23 OF 34 HCAPLUS COPYRIGHT 2008 ACS on STN
 ACCESSION NUMBER: 2004:162949 HCAPLUS Full-text
 DOCUMENT NUMBER: 140:202437
 TITLE: Improvement of pigment-sensitized
 photoelectrochemical cell
 INVENTOR(S): Yoshikawa, Masato; Ohno, Shingo; Kobayashi,
 Taichi; Sugimura, Takayuki; Iwabuchi, Yoshinori;
 Shinjo, Osamu; Sugiyama, Hideo; Horikawa, Yasuo;
 Toyosawa, Shinichi

PATENT ASSIGNEE(S): Bridgestone Corporation, Japan
 SOURCE: PCT Int. Appl., 110 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004017452	A1	20040226	WO 2003-JP9983	20030806
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2003254820	A1	20040303	AU 2003-254820	20030806
EP 1536508	A1	20050601	EP 2003-788043	20030806
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
US 20050260786	A1	20051124	US 2005-524261	20050310
PRIORITY APPLN. INFO.:			JP 2002-235393	A 20020813
			JP 2002-235405	A 20020813
			JP 2002-235408	A 20020813
			JP 2002-288939	A 20021001
			JP 2002-317340	A 20021031
			JP 2002-361067	A 20021212
			JP 2002-361068	A 20021212
			JP 2002-361069	A 20021212
			JP 2002-361071	A 20021212
			WO 2003-JP9983	W 20030806

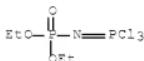
ED Entered STN: 29 Feb 2004

AB An electrolyte for pigment-sensitized solar cells has an oxidation-reduction material loaded on a vulcanized rubber, a polyphosphazene, an EVA resin, or a porous body comprising a polymer that has a three-dimensional continuous network skeleton structure. The photoelectrochem. cell has the above electrolyte placed between dye-sensitized semiconductor electrodes and a counter electrode opposed to the semiconductor electrodes. The photoelectrochem. cells, using the above electrolyte, has improved generation efficiency, durability, and safety and less manufacturing cost.

IT 92713-54-1

(electrolytes containing oxidation-reduction material loaded vulcanized rubbers, polyphosphazenes, EVA resin, or porous polymers

for photoelectrochem. cells)
 RN 92713-54-7 HCPLUS
 CN Phosphoramic acid, (trichlorophosphoranylidene)-, diethyl ester
 (9CI) (CA INDEX NAME)



IC ICM H01M014-00
 ICS H01B001-06; H01L031-04
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 ST pigment sensitized photoelectrochem cell electrolyte;
 electrolyte vulcanized rubber polyphosphazene EVA resin porous
 polymer; oxidn redn material electrolyte photoelectrochem
 cell
 IT Electrolytes
 Photoelectrochemical cells
 (electrolytes containing oxidation-reduction material loaded
 vulcanized rubbers, polyphosphazenes, EVA resin, or porous polymers
 for photoelectrochem. cells)
 IT Polycarbonates, uses
 Polyesters, uses
 (electrolytes containing oxidation-reduction material loaded
 vulcanized rubbers, polyphosphazenes, EVA resin, or porous polymers
 for photoelectrochem. cells)
 IT 7553-56-2, Iodine, uses 7631-86-9, Silica, uses 9010-79-1,
 Ethylene-propylene copolymer 9019-71-0, Butadiene-styrene-
 vinylpyridine copolymer 10377-51-2, Lithium iodide
 13463-67-7, Titania, uses 25038-59-9, PET, uses 50926-11-9, ITO
 92713-54-7 218151-78-1, 1,2-Dimethyl-3-propyl imidazolium
 iodide 663617-66-1 663617-67-2
 (electrolytes containing oxidation-reduction material loaded
 vulcanized rubbers, polyphosphazenes, EVA resin, or porous polymers
 for photoelectrochem. cells)
 REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE
 RE FORMAT

L45 ANSWER 24 OF 34 HCPLUS COPYRIGHT 2008 ACS on STN
 ACCESSION NUMBER: 2003:377216 HCPLUS Full-text
 DOCUMENT NUMBER: 138:371761
 TITLE: Primary nonaqueous electrolyte
 battery and additive for the
 battery electrolyte
 INVENTOR(S): Otsuki, Masashi; Eguchi, Shinichi; Kanno, Yushi
 PATENT ASSIGNEE(S): Bridgestone Corporation, Japan
 SOURCE: PCT Int. Appl., 101 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

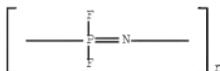
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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WO 2003041197	A1	20030515	WO 2002-JP11173	20021028
W: CA, JP, KR, US				
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR				
CA 2465845	A1	20030515	CA 2002-2465845	20021028
EP 1443578	A1	20040804	EP 2002-775406	20021028
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY, TR, BG, CZ, EE, SK				
US 20050123836	A1	20050609	US 2004-494936	20040507
PRIORITY APPLN. INFO.:			JP 2001-341464	A 20011107
			JP 2001-371305	A 20011205
			JP 2001-371356	A 20011205
			JP 2001-371378	A 20011205
			JP 2001-371499	A 20011205
			WO 2002-JP11173	W 20021028

OTHER SOURCE(S): MARPAT 138:371761
 ED Entered STN: 16 May 2003
 GI

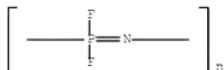


AB The battery uses a nonaq. electrolyte solution containing a supporting salt and a phosphazene derivative additive having viscosity ≤ 100 cP at 25°. The electrolyte solution may contain an aprotic solvent. The additive is preferably I (R1-3 = monovalent substituent or halogen, X1 = organic group containing C, Si, Ge, Sn, N, P, As, Sb, Bi, O, S, Se, Te, and/or Po), Y1-3 = linking group, bond, element or II (R4 = monovalent substituent or halogen, and may differ from each, n = 3-15).
 IT 28655-96-1, Poly[nitrilo(difluorophosphoranylidyne)]
 28655-96-1D, Poly[nitrilo(difluorophosphoranylidyne)], alkyl alkoxy or Ph substituted, fluoro derivs.
 (phosphazene derivative additives in electrolytes for primary lithium batteries)
 RN 28655-96-1 HCAPLUS
 CN Poly[nitrilo(difluorophosphoranylidyne)] (9CI) (CA INDEX NAME)



RN 28655-96-1 HCPLUS

CN Poly[nitrilo(difluorophosphoranylidyne)] (9CI) (CA INDEX NAME)



IC ICM H01M006-16

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST primary nonaq battery electrolyte soln phosphazene

additive

IT Battery electrolytes

(phosphazene derivative additives in electrolytes for primary lithium batteries)

IT 96-48-0, γ -Butyrolactone 108-32-7, Propylene carbonate

616-38-6, Dimethyl carbonate 90076-65-6

(phosphazene derivative additives in electrolytes for primary lithium batteries)

IT 2397-48-0 3654-42-0 28655-96-1,

Poly[nitrilo(difluorophosphoranylidyne)] 28655-96-1D,

Poly[nitrilo(difluorophosphoranylidyne)], alkyl alkoxy or Ph

substituted, fluoro derivs. 97682-87-6 324575-25-9 524699-03-4

(phosphazene derivative additives in electrolytes for primary lithium batteries)

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L45 ANSWER 25 OF 34 HCPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2003:42602 HCPLUS Full-text

DOCUMENT NUMBER: 138:109586

TITLE:

Nonaqueous electrolyte battery
, electrode stabilizing agent,
phosphazene derivative, and manufacture of the
derivativeINVENTOR(S): Otsuki, Masashi; Endo, Shigeki; Ogino, Takao;
Horikawa, Yasuo

PATENT ASSIGNEE(S): Bridgestone Corporation, Japan

SOURCE: PCT Int. Appl., 79 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

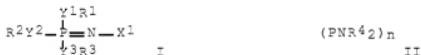
FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003005479	A1	20030116	WO 2002-JP6571	20020628
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW				

CA 2451791	A1	20030116	CA 2002-2451791	20020628
AU 2002313297	A1	20030121	AU 2002-313297	20020628
EP 1414097	A1	20040428	EP 2002-738861	20020628
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
CN 1524313	A	20040825	CN 2002-813411	20020628
CN 1697243	A	20051116	CN 2005-10079713	20020628
US 20040191635	A1	20040930	US 2004-482810	20040105
PRIORITY APPLN. INFO.:			JP 2001-204415	A 20010705
			JP 2001-207705	A 20010709
			JP 2001-207706	A 20010709
			JP 2001-242051	A 20010809
			JP 2001-242067	A 20010809
			CN 2002-813411	A3 20020628
			WO 2002-JP6571	W 20020628

OTHER SOURCE(S): MARPAT 138:109586
ED Entered STN: 17 Jan 2003
GI

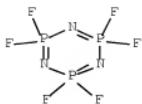


AB The battery has a cathode, a Li intercalating anode, and a nonaq. electrolyte solution containing a supporting electrolyte and a phosphazene derivative, preferably, I (R1-3 = halogen or monovalent substituent, X1 = C, Si, Ge, Sn, N, P, As, Sb, Bi, O, S, Se, Te, Po or a group containing ≥ 1 of the above elements, Y1-3 = bivalent connection group, bivalent element, or a single bond) or II (R4 = halogen or monovalent substituent, n = 3-14). The electrode stabilizing agent is a phosphazene derivative containing groups having multiple bond besides the the multiple bond between N and P. The phosphazene derivs. are prepared by reacting III with alkali metal alkoxide or phenoxide.

IT 15599-91-4D, reaction products with sodium alcohoxates
(nonaq. electrolyte solns. containing phosphazene derivs. for secondary lithium batteries)

RN 15599-91-4 HCAPLUS

CN 1,3,5-2,4,6-Triazaphosphorine, 2,2,4,4,6,6-hexafluoro-2,2,4,4,6,6-hexahydro- (CA INDEX NAME)



IC ICM H01M010-40
 ICS C07F009-6581
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 ST battery electrode stabilizer unsatd phosphazene
 deriv; electrolyte phosphazene deriv secondary
 lithium battery
 IT Battery electrodes
 (nonaq. electrolyte solns. containing electrode
 stabilizing phosphazene derivs. for secondary lithium
 batteries)
 IT Battery electrolytes
 (nonaq. electrolyte solns. containing phosphazene derivs. for
 secondary lithium batteries)
 IT Phosphazenes
 (nonaq. electrolyte solns. containing phosphazene derivs. for
 secondary lithium batteries)
 IT 52627-24-4, Cobalt lithium oxide
 (nonaq. electrolyte solns. containing electrode
 stabilizing phosphazene derivs. for secondary lithium
 batteries)
 IT 64-17-5D, Ethanol, reaction products with
 hexafluorocyclotriphosphazatriene 96-49-1, Ethylene carbonate
 105-58-8, Diethyl carbonate 124-41-4D, Sodium methoxide, reaction
 products with hexafluorocyclotriphosphazatriene 141-52-6D, Sodium
 ethoxide, reaction products with hexafluorocyclotriphosphazatriene
 15599-91-4D, reaction products with sodium alcohoxates
 21324-40-3, Lithium hexafluorophosphate 33027-67-7
 471894-05-0
 (nonaq. electrolyte solns. containing phosphazene derivs. for
 secondary lithium batteries)
 REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE
 RE FORMAT

L45 ANSWER 26 OF 34 HCPLUS COPYRIGHT 2008 ACS on STN
 ACCESSION NUMBER: 2002:241431 HCPLUS Full-text
 DOCUMENT NUMBER: 137:172293
 TITLE: Recent advances in lithium-ion and
 lithium-polymer batteries
 AUTHOR(S): Venkatasetty, H. V.; Jeong, Y. U.
 CORPORATE SOURCE: H. V. Setty Enterprises Inc., Burnsville, MN, USA
 SOURCE: Annual Battery Conference on Applications and
 Advances, 17th, Long Beach, CA, United States,
 Jan. 15-18, 2002 (2002), 173-178. Editor(s): Das,
 Radhe S. L.; Frank, Harvey. Institute of
 Electrical and Electronics Engineers: New York, N.
 Y.
 CODEN: 69CKHG; ISBN: 0-7803-7132-1
 DOCUMENT TYPE: Conference

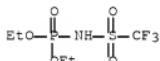
LANGUAGE: English

ED Entered STN: 30 Mar 2002

AB Synthesis of new Li salts and copolymers and the properties of solid polymer electrolyte films (SPE) are described. Novel electrolytes and electrode materials were developed to improve the capacity, energy d., cycle life, and the performance of Li batteries while enhancing safety. These batteries have the potential to meet the needs of medical devices and other portable electronic devices. Improved cathode materials are being developed and composite anodes are being prepared and evaluated. With respect to electrolytes, new materials with high conductivity and electrochem. stability to reduce the size and weight of the batteries are studied. The performance characteristics of prototype cells with SPE films as well as solns. of super acid-based Li salts are presented and discussed in terms of their structure and properties.

IT 338746-30-8
(recent advances in lithium-ion and lithium
-polymer batteries)

RN 338746-30-8 HCPLUS

CN Phosphoranimic acid, [(trifluoromethyl)sulfonyl]-, diethyl ester,
lithium salt (9CI) (CA INDEX NAME)

● Li

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 35, 72

ST lithium imide salt rechargeable battery polymer
electrolyte film cond

IT Secondary batteries
(lithium; recent advances in lithium-ion and
lithium-polymer batteries)

IT Battery anodes

Battery cathodes
Battery electrolytes

Ionic conductivity

Polymer electrolytes

X-ray diffraction

(recent advances in lithium-ion and lithium
-polymer batteries)

IT Fluoropolymers, uses
(recent advances in lithium-ion and lithium
-polymer batteries)

IT Macromonomers
(recent advances in lithium-ion and lithium
-polymer batteries)

IT Polyoxoalkylenes, reactions
(recent advances in lithium-ion and lithium
-polymer batteries)

IT 7782-42-5, Graphite, uses
(MCMB, anode; recent advances in lithium-ion
and lithium-polymer batteries)

IT 2699-79-8D, Sulfonyl fluoride, perfluoroalkyl
(Perfluoroalkyl; recent advances in lithium-ion and lithium-polymer batteries)

IT 12057-17-9, Lithium manganese oxide (LiMn2O4) 132843-44-8
(recent advances in lithium-ion and lithium-polymer batteries)

IT 7440-44-0, Carbon, uses
(recent advances in lithium-ion and lithium-polymer batteries)

IT 9003-07-0P, Celgard 2300
(recent advances in lithium-ion and lithium-polymer batteries)

IT 13463-67-7, Titanium oxide (TiO₂), uses 24937-79-9, Polyvinylidene fluoride
(recent advances in lithium-ion and lithium-polymer batteries)

IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 600-00-0, Ethyl 2-bromo isobutyrate 616-38-6, Dimethylcarbonate 7440-50-8, Copper, uses 63310-83-8, Dicopper dibromide
(recent advances in lithium-ion and lithium-polymer batteries)

IT 189217-56-9 210227-37-5 338746-29-5 338746-30-8
447448-05-7 447448-06-8 447448-07-9 447448-08-0 447448-09-1
447448-10-4 447448-11-5 447448-12-6 447448-13-7 447448-14-8
447448-15-9
(recent advances in lithium-ion and lithium-polymer batteries)

IT 176719-70-3P
(recent advances in lithium-ion and lithium-polymer batteries)

IT 109-72-8, n-Butyllithium, reactions 375-72-4, Perfluorobutylsulfonyl fluoride 7664-41-7, Ammonia, reactions 25322-68-3, Polyethylene oxide 37275-48-2, Dipyridyl 87105-87-1, Poly(ethylene glycol) methyl ether methacrylate homopolymer
(recent advances in lithium-ion and lithium-polymer batteries)

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L45 ANSWER 27 OF 34 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2002:185513 HCAPLUS Full-text
DOCUMENT NUMBER: 136:203115
TITLE: Additive for secondary nonaqueous electrolyte battery and double layer capacitor, the battery, and the capacitor
INVENTOR(S): Otsuki, Masashi; Endo, Shigeki; Ogino, Takao
PATENT ASSIGNEE(S): Bridgestone Corporation, Japan
SOURCE: PCT Int. Appl., 35 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002021631	A1	20020314	WO 2001-JP7692	20010905 W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH,

CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD,
 GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ,
 LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ,
 NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM,
 TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH,
 CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE,
 TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN,
 TD, TG

AU 2001084432 A 20020322 AU 2001-84432 20010905

CA 2422109 A1 20030307 CA 2001-2422109 20010905

EP 1329975 A1 20030723 EP 2001-963433 20010905

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC,
 PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR

US 20030175598 A1 20030918 US 2003-363542 20030305

US 7099142 B2 20060829

PRIORITY APPLN. INFO.: JP 2000-272082 A 20000907

JP 2000-272083 A 20000907

WO 2001-JP7692 W 20010905

ED Entered STN: 15 Mar 2002

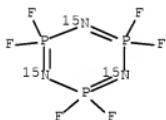
AB The additive contains a phosphazene derivative (PNF2)3-14.

IT 72924-67-5

(cyclic phosphazene additives in nonaq. electrolyte
 solns. for secondary lithium batteries and
 double layer capacitors)

RN 72924-67-5 HCAPLUS

CN 1,3,5,2,4,6-Triazatrichosphorine-1,3,5-15N₃, 2,2,4,4,6,6-hexafluoro-
 2,2,4,4,6,6-hexahydro- (9CI) (CA INDEX NAME)



IC ICM H01M010-40

ICS H01M006-16; H01G009-038

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST secondary nonaq battery phosphazene deriv additive; double
 layer capacitor phosphazene deriv additive

IT Battery electrolytes

(cyclic phosphazene additives in nonaq. electrolyte
 solns. for secondary lithium batteries)

IT Cyclophosphazenes

(cyclic phosphazene additives in nonaq. electrolyte
 solns. for secondary lithium batteries and
 double layer capacitors)

IT Capacitors

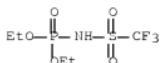
(double layer; cyclic phosphazene additives in nonaq.
 electrolyte solns. for double layer capacitors)

IT 108-32-7, Propylene carbonate 429-06-1, Tetraethylammonium

tetrafluoroborate
 (cyclic phosphazene additives in nonaq. electrolyte
 solns. for double layer capacitors)
 IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate
 14283-07-9, Lithium fluoroborate 21324-40-3,
 Lithium hexafluorophosphate
 (cyclic phosphazene additives in nonaq. electrolyte
 solns. for secondary lithium batteries)
 IT 72924-67-5
 (cyclic phosphazene additives in nonaq. electrolyte
 solns. for secondary lithium batteries and
 double layer capacitors)

REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE
 RE FORMAT

L45 ANSWER 28 OF 34 HCPLUS COPYRIGHT 2008 ACS on STN
 ACCESSION NUMBER: 2001:179534 HCPLUS Full-text
 DOCUMENT NUMBER: 134:342446
 TITLE: New and novel lithium imide
 electrolytes and copolymers: Synthesis and
 characterization for lithium
 rechargeable batteries
 AUTHOR(S): Venkatasethy, H. V.
 CORPORATE SOURCE: H.V. Setty Enterprises, Inc., Burnsville, MN, USA
 SOURCE: Annual Battery Conference on Applications and
 Advances, 16th, Long Beach, CA, United States,
 Jan. 9-12, 2001 (2001), 277-282. Editor(s): Das,
 Radhe S. L.; Frank, Harvey. Institute of
 Electrical and Electronics Engineers: New York, N.
 Y.
 CODEN: 69BADM
 DOCUMENT TYPE: Conference
 LANGUAGE: English
 ED Entered STN: 15 Mar 2001
 AB Several new and novel Lithium imide salts were synthesized and characterized
 for their conductivities and electrochem. stabilities in nonaq. solvent mixts.
 Many copolymers and diblock copolymers using monomers such as polyethylene
 glycol methacrylate of different mol. wts. and/or poly(lauryl methacrylate)
 were synthesized and characterized. Solid polymer electrolytes with promising
 Li salts and copolymers were prepared with different Li/O ratios and varying
 ratios of copolymers and polyethylene oxide with inert additives. Their
 conductivities and electrochem. stabilities were measured. All Lithium imide
 salts and copolymer-based solid polymer electrolyte films are found to be
 stable from 0 to 4.5 V vs. Li. The solubilities and the conductivities of Li
 imide salts are found to depend on their structure. The phys. properties of
 copolymers are known to depend on the type and the mol. weight of the monomer
 used and the polymerization process. The solid polymer electrolyte films
 containing a large fraction of the copolymers in the mixture with polyethylene
 oxide and Li salts show much improved conductivity at room temperature. Both
 the solid polymer electrolyte films and the Li imide salt solns. have been
 used in Li cells to evaluate their performance. The performance data of cells
 with these electrolytes are discussed in terms of their structures and compns.
 IT 338746-30-8P
 (synthesis and characterization of lithium imide
 electrolytes and copolymers for lithium
 rechargeable batteries)
 RN 338746-30-8 HCPLUS
 CN Phosphoramidic acid, [(trifluoromethyl)sulfonyl]-, diethyl ester,
 lithium salt (9CI) (CA INDEX NAME)



● Li

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

Section cross-reference(s): 38

ST lithium battery lithium imide
electrolyte copolymer

IT Secondary batteries

(lithium; synthesis and characterization of
lithium imide electrolytes and copolymers for
lithium rechargeable batteries)

IT Polyoxalkylenes, uses

(polymers, complexes with lithium trifluoromethylsulfonyl
perfluorobutylsulfonamide; synthesis and characterization of
lithium imide electrolytes and copolymers for
lithium rechargeable batteries)

IT Battery electrolytes

Electric conductivity

(synthesis and characterization of lithium imide
electrolytes and copolymers for lithium
rechargeable batteries)

IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 616-38-6,

Dimethyl carbonate

(synthesis and characterization of lithium imide
electrolytes and copolymers for lithium
rechargeable batteries)

IT 25322-68-3DP, Polyethylen glycol, polymers, complexes with
lithium trifluoromethylsulfonyl perfluorobutylsulfonamide

176719-70-3P 338746-27-3P 338746-28-4P 338746-29-5P

338746-30-6P
(synthesis and characterization of lithium imide
electrolytes and copolymers for lithium
rechargeable batteries)

IT 13463-67-7, Titania, uses

(synthesis and characterization of lithium imide
electrolytes and copolymers for lithium
rechargeable batteries)

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR
THIS RECORD. ALL CITATIONS AVAILABLE IN THE
RE FORMAT

L45 ANSWER 29 OF 34 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1998:686074 HCAPLUS Full-text

DOCUMENT NUMBER: 130:25419

TITLE: Polyphosphazenes with Novel Architectures:
Influence on Physical Properties and Behavior as
Solid Polymer Electrolytes

AUTHOR(S): Allcock, Harry R.; Sunderland, Nicolas J.;
Ravikiran, Ramakrishna; Nelson, James M.

CORPORATE SOURCE: Department of Chemistry, The Pennsylvania State

SOURCE: University, University Park, PA, 16802, USA
 Macromolecules (1998), 31(23), 8026-8035
 CODEN: MAMOBX; ISSN: 0024-9297
 PUBLISHER: American Chemical Society
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 ED Entered STN: 30 Oct 1998

AB Three types of polyphosphazenes with different architectures have been synthesized and characterized. The influence of the polymer architecture on solid ionic conductivity was of particular interest. The first type includes linear oligo- and polyphosphazenes with the general formula [N:P(OCH₂CH₂OCH₂CH₂OCH₃)₂n] (MEEP) with different chain lengths. The second type consists of a series of tri-armed star-branched polyphosphazenes with the general formula N(CH₂CH₂NH(CF₃CH₂)₂P(N:P(OCH₂CH₂OCH₂CH₂OCH₃)₂n)₃ with different arm lengths. These were synthesized via the reaction of the tridentate initiator [N(CH₂CH₂NH(CF₃CH₂)₂P(N:P-PCl₃+)₃][PCl₆-]₃ with the phosphoranimine C13P:NSiMe₃ in CH₂C₁₂ followed by halogen replacement with sodium (methoxyethoxy)ethoxide. The mol. wts. in this system were carefully controlled by variation of the monomer-to-initiator ratios, and the effect of polymer mol. weight on solid ionic conductivity was examined. The third polymer system was designed to examine the effect of complex branching on ionic conductivity. Thus, a highly branched polymer containing five branches from a cyclotriphosphazene pendent side group (with 26 ethyleneoxy units per repeat unit) was synthesized. The conductivity of this polymer in the presence of three different salts has been measured and compared to the behavior of MEEP with a corresponding mol. weight. The mechanism of ion transport in these systems is discussed.

IT 188186-00-7 216530-14-2
 (initiator used as core for branched polyphosphazenes; preparation of polyphosphazenes with novel architecture, their phys. properties, and ionic conductivity of solid polymer electrolytes prepared by complexation of polyphosphazenes with lithium)

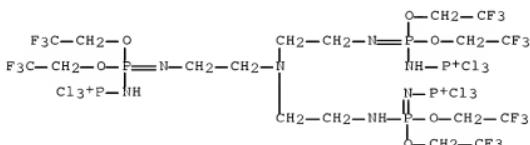
RN 188186-00-7 HCPLUS

CN Phosphorus(3+), nonachloro[μ₃-{[hexakis(2,2,2-trifluoroethyl)N,N',N''''-(nitrioltri-2,1-ethanediyl)tris[phosphoramidimidato-KN']]}(3-)]tri-, tris[hexachlorophosphate(1-)] (9CI) (CA INDEX NAME)

CM 1

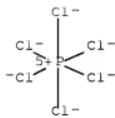
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CMF C18 H27 C19 F18 N7 O6 P6



CM 2

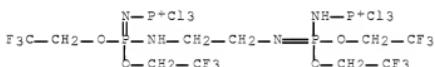
CRN 16920-87-9
 CMF C16 P
 CCI CCS



RN 216530-14-2 HCPLUS
 CN Phosphorus(2+), hexachloro[μ-[[tetrakis(2,2,2-trifluoroethyl)N,N'-1,2-ethanediyl]bis[phosphoramidimidato-κN']])(2-)]di-,
 bis[hexachlorophosphate(1-)] (9CI) (CA INDEX NAME)

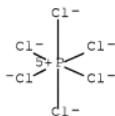
CM 1

CRN 216530-13-1
 CMF C10 H14 Cl6 F12 N4 O4 P4



CM 2

CRN 16920-87-9
 CMF C16 P
 CCI CCS



CC 35-7 (Chemistry of Synthetic High Polymers)
 Section cross-reference(s): 37, 52, 76
 ST polyphosphazene novel structure lithium complex ionic cond
 IT Polymerization
 Polymerization
 Polymerization catalysts

Polymerization catalysts
 (cationic, living; preparation of polyphosphazenes with novel architecture, their phys. properties, and ionic conductivity of solid polymer electrolytes prepared by complexation of polyphosphazenes with lithium)

IT Battery electrolytes
 Glass transition temperature
 Ionic conductivity
 Molecular weight
 Polymer electrolytes
 (preparation of polyphosphazenes with novel architecture, their phys. properties, and ionic conductivity of solid polymer electrolytes prepared by complexation of polyphosphazenes with lithium)

IT 131841-09-3P
 (byproduct in preparation of polyphosphazenes with novel architecture, their phys. properties, and ionic conductivity of solid polymer electrolytes prepared by complexation of polyphosphazenes with lithium)

IT 10026-13-8, Phosphorus pentachloride
 (catalyst; preparation of polyphosphazenes with novel architecture, their phys. properties, and ionic conductivity of solid polymer electrolytes prepared by complexation of polyphosphazenes with lithium)

IT 33454-82-9, Lithium triflate
 (electrolytes; preparation of polyphosphazenes with novel architecture, their phys. properties, and ionic conductivity of solid polymer electrolytes prepared by complexation of polyphosphazenes with lithium)

IT 188186-00-7 216530-14-2
 (initiator used as core for branched polyphosphazenes; preparation of polyphosphazenes with novel architecture, their phys. properties, and ionic conductivity of solid polymer electrolytes prepared by complexation of polyphosphazenes with lithium)

IT 19278-10-5DP, 2-(2-Methoxyethoxy)ethanol sodium salt, reaction products with poly(dichlorophosphazene), lithium complexes
 26085-02-9DP, Poly(dichlorophosphazene), derivs., lithium complexes
 40678-60-2DP, derivs., lithium complexes
 (linear and branched; preparation of polyphosphazenes with novel architecture, their phys. properties, and ionic conductivity of solid polymer electrolytes prepared by complexation of polyphosphazenes with lithium)

IT 216530-18-6DP, reaction products with poly(dichlorophosphazene), lithium complexes
 (preparation of polyphosphazenes with novel architecture, their phys. properties, and ionic conductivity of solid polymer electrolytes prepared by complexation of polyphosphazenes with lithium)

IT 7439-93-2DP, Lithium, complexes with polyphosphazenes, preparation
 (preparation of polyphosphazenes with novel architecture, their phys. properties, and ionic conductivity of solid polymer electrolytes prepared by complexation of polyphosphazenes with lithium)

IT 110-87-2 112-27-6 19278-10-5, 2-(2-Methoxyethoxy)ethanol sodium salt
 (reactant in preparation of polyphosphazenes with novel architecture, their phys. properties, and ionic conductivity of solid polymer electrolytes prepared by complexation of polyphosphazenes with lithium)

IT 60221-37-6P 132939-00-5P 216530-17-5P 216530-18-6P
 (reactant in preparation of polyphosphazenes with novel architecture, their phys. properties, and ionic conductivity of solid polymer

electrolytes prepared by complexation of polyphosphazenes
with lithium)

REFERENCE COUNT: 44 THERE ARE 44 CITED REFERENCES AVAILABLE FOR
THIS RECORD. ALL CITATIONS AVAILABLE IN THE
RE FORMAT

L45 ANSWER 30 OF 34 HCPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1998:681962 HCPLUS Full-text
DOCUMENT NUMBER: 129:262843
ORIGINAL REFERENCE NO.: 129:53509a,53512a
TITLE: High conductivity electrolyte solutions
and secondary batteries using the
solutions
INVENTOR(S): Angell, Charles Austen; Zhang, Sheng-Shui; Xu,
Kang
PATENT ASSIGNEE(S): Arizona Board of Regents, USA
SOURCE: U.S., 14 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5824433	A	19981020	US 1996-748009	19961112
PRIORITY APPLN. INFO.:			US 1996-748009	19961112

OTHER SOURCE(S): MARPAT 129:262843

ED Entered STN: 28 Oct 1998

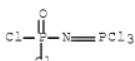
AB The electrolyte solns. contain an electrolyte solute and a sulfonyl/phospho compound solvent RSO₂X (X = halide and R = perfluoroalkyl group, perchlorated group, N:PX₃) or X₃P:NR' [R' = P(O)X₂ or C₁-6 alkyl group]. The solvent may contain Cl₃PNSO₂Cl, Cl₃PNP(O)Cl₂, Cl₃PNC₃H₃, Cl₃PNC₂CH₃, and/or CF₃(CF₂)₃SO₂F; and the electrolyte solute os LiAlC₄ or (CF₃SO₂)₂NLi. The electrolyte may also contain a polymer.

IT 13966-08-0P

(high conductivity electrolyte solns. containing sulfur-phosphorus compound electrolyte solvents for secondary batteries)

RN 13966-08-0 HCPLUS

CN Phosphorimidic trichloride, (dichlorophosphinyl)- (6CI, 8CI, 9CI) (CA INDEX NAME)



IC ICM H01M006-14

INCL 429194000

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST lithium battery electrolyte solvent;

battery electrolyte solvent sulfur phosphorous compd

IT Battery electrolytes

(high conductivity electrolyte solns. containing sulfur-phosphorus

compound electrolyte solvents for secondary lithium batteries and sodium/sulfur batteries)

IT 124-63-0, Methanesulfonyl chloride 9011-14-7, Pmma 14024-11-4,
Aluminum lithium chloride (LiAlCl₄) 90076-65-6
(high conductivity electrolyte solns. containing sulfur-phosphorus compound electrolyte solvents for secondary batteries)

IT 13966-08-0P 14700-21-1P 23453-30-7P 44584-14-7P
(high conductivity electrolyte solns. containing sulfur-phosphorus compound electrolyte solvents for secondary batteries)

REFERENCE COUNT: 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L45 ANSWER 31 OF 34 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1997:443306 HCAPLUS Full-text

DOCUMENT NUMBER: 127:53454

ORIGINAL REFERENCE NO.: 127:10137a,10140a

TITLE: Electrochemically stable electrolytes

which do not crystallize at ambient temperature
Angell, Charles Austen; Zhang, Sheng Shui; Xu, Kang

PATENT ASSIGNEE(S): Arizona Board of Regents, USA

SOURCE: PCT Int. Appl., 31 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9718159	A1	19970522	WO 1996-US18325	19961113
W: AL, AM, AT, AU, AZ, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TR, TT, UA, UG, UZ, VN RW: KE, LS, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
US 5855809	A	19990105	US 1996-748008	19961112
AU 9676807	A	19970605	AU 1996-76807	19961113
PRIORITY APPLN. INFO.:			US 1995-6437P	P 19951113
			US 1996-748008	A 19961112
			WO 1996-US18325	W 19961113

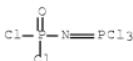
ED Entered STN: 17 Jul 1997

AB The electrolytes are quasi-salt inorg. ionic liqs. which comprise the reaction product of a strong Lewis acid with an inorg. halide-donating mol., which comprises a substructure selected from NPX3, SO₂X, and C(O)X, where X is a halogen. The strong Lewis acid is selected from AlCl₃, BC₁₃, SbCl₃, and FeCl₃. These quasi-salt inorg. ionic liquid mixts. are useful electrolytes.

IT 13966-08-0P, reaction product with aluminum chloride
(electrochem. stable electrolytes from)

RN 13966-08-0 HCAPLUS

CN Phosphorimidic trichloride, (dichlorophosphinyl)- (6CI, 8CI, 9CI) (CA INDEX NAME)



IC ICM C01B021-06
 ICS C01B025-10; C01C001-02; H01B001-00
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 49
 ST battery electrolyte electrochem stable; halide
 donating mol Lewis acid electrolyte
 IT Battery electrolytes
 (electrochem. stable which do not crystallize at ambient temperature)
 IT 7446-70-0D, Aluminum chloride (AlCl₃), reaction product with inorg.
 halide-donating mol., processes 7705-08-0D, Iron chloride (FeCl₃),
 reaction product with inorg. halide-donating mol., processes
 10025-91-9D, Antimony chloride (SbCl₃), reaction product with inorg.
 halide-donating mol. 10294-34-5D, Boron chloride (BCl₃), reaction
 product with inorg. halide-donating mol.
 (electrochem. stable electrolytes from)
 IT 75-36-5DP, Acetyl chloride, reaction product with aluminum chloride
 13966-08-0DP, reaction product with aluminum chloride
 14700-21-1DP, reaction product with aluminum chloride 23453-30-7DP,
 reaction product with aluminum chloride 44584-14-7DP, reaction
 product with boron chloride
 (electrochem. stable electrolytes from)
 IT 2926-30-9, Sodium trifluoromethanesulfonate 7784-16-9, Sodium
 chloroaluminate 14024-11-4, Lithium chloroaluminate
 33454-82-9, Lithium trifluoromethanesulfonate 90076-65-6,
 Lithium bis(trifluoromethylsulfonyl)imide 91742-21-1, Sodium
 bis(trifluoromethylsulfonyl)imide
 (quasi-salt inorg. ionic liquid electrolytes containing)

L45 ANSWER 32 OF 34 HCPLUS COPYRIGHT 2008 ACS on STN
 ACCESSION NUMBER: 1996:744515 HCPLUS Full-text
 DOCUMENT NUMBER: 126:149660
 ORIGINAL REFERENCE NO.: 126:28845a,28848a
 TITLE: Room temperature inorganic "quasi-molten salts" as
 alkali-metal electrolytes
 AUTHOR(S): Xu, K.; Zhang, S.; Angell, C. A.
 CORPORATE SOURCE: Dep. Chem., Arizona State Univ., Tempe, AZ,
 85287-1604, USA
 SOURCE: Journal of the Electrochemical Society (1996),
 143(11), 3548-3554
 CODEN: JESOAN; ISSN: 0013-4651
 PUBLISHER: Electrochemical Society
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 ED Entered STN: 19 Dec 1996
 AB Room temperature inorg. liqs. of high ionic conductivity were prepared by
 reacting Lewis acid AlCl₃ with sulfonyl chlorides. The mechanism is not clear
 at this time since a crystal structure study of the 1:1 complex with CH₃SO₂Cl
 (Tm = 30°) is not consistent with a simple chloride transfer to create AlClO₄
 anions. The liquid is in a state somewhere between ionic and mol. A new term
 quasi-molten salt is adopted to describe this state. A comparably conducting

liquid can be made using BCl_3 in place of $AlCl_3$. Unlike their organic counterparts based on ammonium cations (e.g., pyridinium or imidazolium) which reduce in the presence of alkali metals, this inorg. class of cation shows great stability against electrochem. reduction (.apprx.-1.0 V vs. Li^+/Li), with the useful consequence that reversible lithium and sodium metal deposition/stripping can be supported. The electrochem. window for these quasi-salts with $AlCl_3$ ranges up to 5.0 V, and their room temperature conductivities exceed 10^{-4} S/cm. They dissolve lithium and sodium tetrachloroaluminates up to mole fraction .apprx.0.6 at 100° and intermediate compns. are permanently stable at ambient. The resultant lithium or sodium salt soins. exhibit electrochem. windows of 4.5-5.0 V vs. Li^+/Li or Na^+/Na and show room temperature conductivities of 10^{-30} .apprx. 10^{-25} S/cm. In preliminary charge/discharge tests, the cell $Li/$ quasi-ionic liquid electrolyte/ $Li_{1-x}Mn_2O_4$ showed a discharge capacity of .apprx.110 mA-h/(g of cathode) and sustained 80% of the initial capacity after 60 cycles, indicating that these quasi-molten salt-based electrolytes are promising candidates for alkali-metal batteries.

IT 186696-43-5P

(ionic conductivity and electrochem. potential window and room temperature inorg. quasi-molten salts as alkali-metal electrolytes)

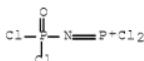
RN 186696-43-5 HCPLUS

CN Phosphorus(1+), dichloro[phosphoramicidic dichloridato(2-)- κN]-, (T-4)-tetrachloroaluminate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 186696-42-4

CMF C14 N O P2



CM 2

CRN 17611-22-2

CMF Al Cl4

CCI CCS

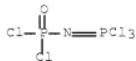


IT 13966-08-0P

(reaction with aluminum chloride: electrochem. potential window and room temperature inorg. quasi-molten salts as alkali-metal electrolytes)

RN 13966-08-0 HCPLUS

CN Phosphorimidic trichloride, (dichlorophosphinyl)- (6CI, 8CI, 9CI) (CA INDEX NAME)



CC 72-2 (Electrochemistry)
 Section cross-reference(s): 52, 68, 76
 ST room temp inorg quasi molten salt; alkali metal electrolyte
 quasi molten salt; sulfonyl aluminum chloride melt electrochem window;
 phosphoryl aluminum chloride melt electrochem window; electrochem
 potential window sulfonyl phosphoryl chloroaluminate; battery
 electrolyte inorg quasi molten salt
 IT Battery electrolytes
 (of sulfonyl chloride or phosphoryl chloride compds. with aluminum
 chloride)
 IT 14024-11-4, Lithium tetrachloroaluminate
 (cyclic voltammetry of trichlorophosphazosulfonyl chloride-aluminum
 chloride compound with and without LiAlCl₄ and of LiAlCl₄ in
 methanesulfonyl chloride)
 IT 186696-36-6P
 (electrochem. potential window and room temperature inorg. quasi-molten
 salts as alkali-metal electrolytes)
 IT 186696-38-8P 186696-40-2P 186696-41-3P 186696-43-5P
 (ionic conductivity and electrochem. potential window and room temperature
 inorg. quasi-molten salts as alkali-metal electrolytes)
 IT 75-36-5, Acetyl chloride 124-63-0, Methanesulfonyl chloride
 (reaction with aluminum chloride: electrochem. potential window and
 room temperature inorg. quasi-molten salts as alkali-metal
 electrolytes)
 IT 6041-61-8P 13966-08-0P 14700-21-1P,
 Trichlorophosphazosulfonyl chloride
 (reaction with aluminum chloride: electrochem. potential window and
 room temperature inorg. quasi-molten salts as alkali-metal
 electrolytes)

L45 ANSWER 33 OF 34 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1996:582562 HCAPLUS Full-text

DOCUMENT NUMBER: 125:252809

ORIGINAL REFERENCE NO.: 125:47151a,47154a

TITLE: Inorganic electrolyte solutions and gels
 for rechargeable lithium
 batteries

AUTHOR(S): Xu, Kang; Day, Natalie D.; Angell, C. Austen

CORPORATE SOURCE: Dep. Chem., Arizona State Univ., Tempe, AZ,
 85287-1604, USA

SOURCE: Journal of the Electrochemical Society (1996),
 143(9), L209-L211

CODEN: JESOAN; ISSN: 0013-4651

PUBLISHER: Electrochemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 30 Sep 1996

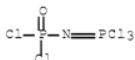
AB A class of inorg. oxychloride compds. have been evaluated for use as electrolytic solvents in rechargeable lithium batteries. Compared with SO₂-based electrolytes, these showed much improved safety while maintaining room temperature conductivities of 10-3-10-2 S/cm and electrochem. voltage windows of 4.5-5.5 V vs. Li⁺/Li and supporting reversible Li metal deposition/stripping. With the addition of 2-5% polymer, the solns. acquire rubbery character with little loss of conductivity and no change in electrochem. stability. Preliminary charge/discharge tests with intercalation-type cathode as well as sulfur-based cathode showed that these inorg. electrolytes can operate with excellent reversibility.

IT 13966-08-0

(solvent; inorg. electrolyte solns. and gels for rechargeable lithium batteries)

RN 13966-08-0 HCPLUS

CN Phosphorimidic trichloride, (dichlorophosphinyl)- (6CI, 8CI, 9CI) (CA INDEX NAME)



CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST lithium battery inorg electrolyte soln

gel; safety lithium battery inorg

electrolyte oxychloride

IT Battery electrolytes

(inorg. electrolyte solns. and gels for rechargeable lithium batteries)

IT Electric conductivity and conduction

(ionic, inorg. electrolyte solns. and gels for rechargeable lithium batteries)

IT 9011-14-7, Pmma

(electrolyte additive; inorg. electrolyte solns. and gels for rechargeable lithium batteries)

IT 14024-11-4, Lithium tetrachloroaluminate 90076-65-6

(electrolyte; inorg. electrolyte solns. and gels for rechargeable lithium batteries)

IT 124-63-0, Methane sulfonylchloride 13966-08-0 14700-21-1,

Trichlorophosphazosulfonyl chloride

(solvent; inorg. electrolyte solns. and gels for rechargeable lithium batteries)

L45 ANSWER 34 OF 34 HCPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1964:50673 HCPLUS Full-text

DOCUMENT NUMBER: 60:50673

ORIGINAL REFERENCE NO.: 60:8889f-h,8890a-b

TITLE: The effect of the direct current on the wetting of graphite by the halides of the first and second metal groups

AUTHOR(S): Zhemchuzhina, E. A.

SOURCE: Poverkhn. Yavleniya v Met. Protsessakh, Sb. Tr. Mezhvuz. Konf., Moscow (1963), Volume Date 1961 81-115

DOCUMENT TYPE: Journal

LANGUAGE: Unavailable

ED Entered STN: 22 Apr 2001

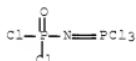
AB In the alkali metal chloride melts in the case of anode polarization, the interfacial tension on the graphite boundary increased in the following way: $RbCl < KCl < LiCl < NaCl$, as a result of the decrease in the surface activity. In the case of the cathode polarization $NaCl$ was the most surface active. In the range of $\nu\phi_i = 0.4+2.2$ v., the change of the interfacial tension on the anode had a maximum corresponding to the zero charge of the electrolyte surface, while in the case of cathode polarization, continuous decrease with increasing electroneg. potential was observed. Graphite surface on the contact with molten alkali metal chlorides had a neg. charge. In the alkali metal fluoride melts in both cases of the anode and cathode polarization, KF was the most surface active, LiF the least surface active. In the range of $\nu\phi_i = 0.4+2.2$ v. the anode electrocapillary curves were distorted, while in the case of the cathode polarization the decrease in the interfacial tension with increasing surface charge revealed the neg. charge of the graphite surface. Surface activity of Cl^- and F^- on both the anode and the cathode depended on the nature of the univalent cation. In the alkaline earth metal halide melts in the case of the anode polarization, $MgCl_2$ was surface active on the contact, while $CaCl_2$ and $MgCl_2$ were surface inactive. In the case of cathode polarization with increasing neg. charge of the surface, the decrease in the interfacial tension was observed. In the case of binary $NaCl + KCl$ melts, KCl is not surface active on the anode, while $NaCl$ is not surface active on the cathode. The electrocapillary curves revealed a neg. charge of the graphite surface. The 10 mol. % addns. of alkali metal and alkaline earth metal chlorides and fluorides to NaF showed that, in the case of anode polarization, the maximum on the electrocapillary curves corresponded to a zero charge of the electrode surface, which revealed the pos. charge of the graphite. Also, the addns. of alkali chlorides caused a decrease in the wetting of graphite in comparison with the unpolarized graphite. KCl was the most surface active, $CaCl_2$ was more surface active than $MgCl_2$. The graphite surface in all these melts without the outer polarization had a neg. charge. The comparison of the fluorides and chlorides, having the same cation, showed that fluorides were more surface active on the anode and chlorides on the cathode.

IT 13966-08-0P, Phosphoramidic dichloride,
(trichlorophosphoranylidene)-

(preparation of)

RN 13966-08-0 HCPLUS

CN Phosphorimidic trichloride, (dichlorophosphinyl)- (6CI, 8CI, 9CI) (CA INDEX NAME)



CC 15 (Electrochemistry)

IT Polarization (electrolytic)

(of graphite wetting by fused halides and)

IT 7447-40-7, Potassium chloride 7447-41-8, Lithium chloride

7647-14-5, Sodium chloride 7786-30-3, Magnesium chloride

7789-23-3, Potassium fluoride, KF 7789-24-4, Lithium

fluoride 7791-11-9, Rubidium chloride 10043-52-4, Calcium chloride

(graphite wetting by fused, polarization and)

IT 13966-08-0P, Phosphoramidic dichloride,

(trichlorophosphoranylidene) -
(preparation of)

=> d his nofile

(FILE 'HOME' ENTERED AT 10:36:12 ON 07 AUG 2008)

FILE 'HCAPLUS' ENTERED AT 10:37:35 ON 07 AUG 2008
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 SEL RN

FILE 'REGISTRY' ENTERED AT 10:38:00 ON 07 AUG 2008
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 110-71-4/BI OR 1313-13-9/BI OR 134435-36-2/BI OR 25322-68-3
 /BI OR 33027-66-6/BI OR 485399-26-6/BI OR 52627-24-4/BI OR
 55593-38-9/BI OR 593094-52-1/BI OR 639065-14-8/BI OR
 639065-15-9/BI OR 639067-35-9/BI OR 639067-36-0/BI OR
 639067-37-1/BI OR 7439-93-2/BI OR 96-49-1/BI)
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 L4 8 SEA ABB=ON PLU=ON L2 NOT L3

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 L7 50 SEA SSS SAM L6
 L8 919149 SEA ABB=ON PLU=ON (P(L)N)/ELS
 L9 10 SEA ABB=ON PLU=ON L8 AND L2
 L10 895682 SEA ABB=ON PLU=ON L8 NOT PMS/CI
 L11 2814 SEA ABB=ON PLU=ON L10 AND 46.716/RID AND 46.150/RID
 L12 15 SEA ABB=ON PLU=ON L11 AND L1/ELS
 L13 3 SEA ABB=ON PLU=ON L12 AND L2
 L14 485953 SEA ABB=ON PLU=ON L10 AND 46.150/RID
 L15 1869 SEA ABB=ON PLU=ON L14 AND L1/ELS
 L16 5 SEA ABB=ON PLU=ON L15 AND 6/N AND 1/O
 L17 105 SEA ABB=ON PLU=ON L10 AND IMINOIMIDODIPHOSPHORAMID?
 L18 1 SEA ABB=ON PLU=ON L17 AND L1/ELS
 L19 296678 SEA ABB=ON PLU=ON L8 AND X/ELS
 L20 13143 SEA ABB=ON PLU=ON L19 AND PHOSPHORAMID?
 L21 5238 SEA ABB=ON PLU=ON L20 AND (SI OR GE OR SN OR AS OR SB OR
 BI OR S OR SE OR TE OR PO)/ELS
 L22 64 SEA ABB=ON PLU=ON L8 AND F/ELS AND 3/ELC.SUB
 L23 777044 SEA ABB=ON PLU=ON L8 AND O/ELS
 L24 193937 SEA ABB=ON PLU=ON L23 AND (SI OR GE OR SN OR AS OR SB OR
 BI OR S OR SE OR TE OR PO)/ELS
 L25 0 SEA ABB=ON PLU=ON L24 AND L2
 L26 584 SEA ABB=ON PLU=ON L24 AND PHOSPHINIC AMIDE?

FILE 'HCAPLUS' ENTERED AT 11:58:05 ON 07 AUG 2008
 L27 13 SEA ABB=ON PLU=ON L12
 L28 1 SEA ABB=ON PLU=ON L18
 L29 13 SEA ABB=ON PLU=ON L27 OR L28
 L30 45 SEA ABB=ON PLU=ON L17
 L31 3 SEA ABB=ON PLU=ON L30 AND LITHIUM
 L32 15 SEA ABB=ON PLU=ON L29 OR L31
 L33 1 SEA ABB=ON PLU=ON L30 AND ELECTROLYT?
 L34 QUE ABB=ON PLU=ON BATTERY? OR BATTERIES OR ELECTRODE# OR
 CATHODE# OR ANODE#
 L35 1 SEA ABB=ON PLU=ON L30 AND L34
 L36 15 SEA ABB=ON PLU=ON L32 OR L33 OR L35

L37 2188 SEA ABB=ON PLU=ON L21
L38 25626 SEA ABB=ON PLU=ON L20
L39 322 SEA ABB=ON PLU=ON L26
L40 337 SEA ABB=ON PLU=ON L22
L41 26191 SEA ABB=ON PLU=ON (L37 OR L38 OR L39 OR L40)
L42 155 SEA ABB=ON PLU=ON L41 AND L34
L43 48 SEA ABB=ON PLU=ON L42 AND ELECTROLYT?
L44 34 SEA ABB=ON PLU=ON L43 AND LITHIUM
L45 34 SEA ABB=ON PLU=ON L44 NOT